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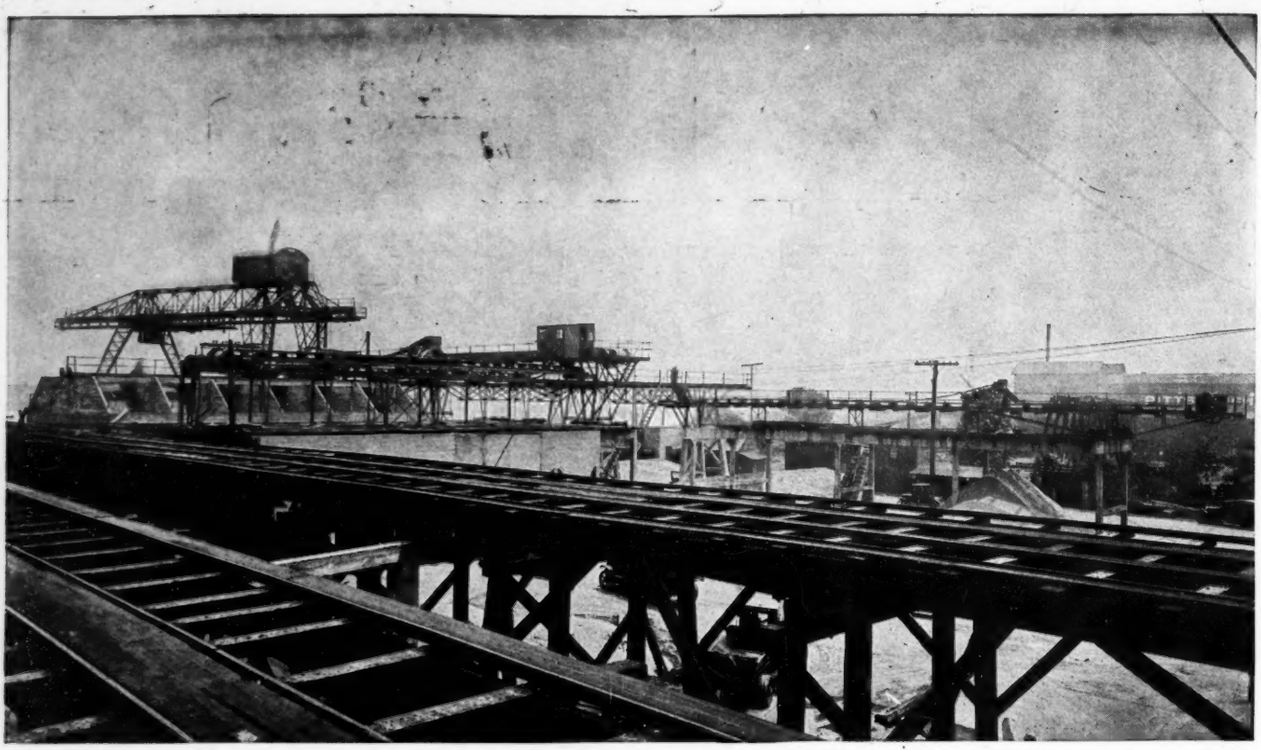

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MATERIAL HANDLING EQUIPMENT

COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, *Editor*

Volume 24 NEW YORK, SEPTEMBER 20, 1923 Number 12

It's a Thin Alibi

AND so the Herrin horror was a bit of communism! The able publicists of the United Mine Workers tell the world it is so—and back up the statement with certain proofs, such as they are. In view of the zeal with which the United Mine Workers organization hindered the progress of a socalled justice in Williamson County following the Herrin massacre of June, 1922, and in view of the spirit with which it leaped to the defence of the long list of Williamson County citizens finally indicted for murder, the union must have been quite sympathetic with communism at the time. Why the change now?

There are two reasons. The principal one is that communism offers a ready and popular alibi for everything. The publicists' picture of John L. Lewis patriotically battling the red influence that strives insidiously to undermine the honest labor of America is an heroic one. It is certain to exalt that labor leader in the minds of many Americans. And the United Mine Workers, as an organization, will enjoy a certain vicarious heroism by the same sign. The publicity which the miners' union is putting out and will continue to put out on the subject will be good publicity. Many an American, thinking along the surface of things, will accept it as true because he will not know any better.

The second reason for the alibi is an internal one. There are thousands of honest, sound, reputable citizens in the ranks of the United Mine Workers. They believe in good citizenship. They can see no reason why unionism should run counter to it. They have been unable to reconcile the attitude of their union at Herrin with the commonest rules of such citizenship. It is necessary to calm their fears for their organization. So union headquarters offers them the alibi. This alibi was late in coming, because it could hardly have been set up when the facts in the Herrin case were fresh in the country's mind, but it is better late than never, and better than nothing. It may be convincing to a lot of good union men anxious to be convinced. They must be pretty anxious, however.

Every man in the union knows the venom of the organization toward non-unionism. Every man knows that a foolish operator at Herrin deliberately defied the union at a time when it was on a strike and in fighting mood. Every man knows that in the heat of the Herrin situation President Lewis sent an inflammatory telegram bidding the union men of the region to treat the non-unionists in the strip mine as "common strike breakers," which was about as open an order for violence as a man in Mr. Lewis' position could issue. Every man knows that unionism carried out the order bloodily and then did everything within union power to prevent the punishment of everybody connected with the crime of butchering twenty-five men before the eyes of hundreds of citizens.

By buying the strip mine and then disposing of it as quickly and as surreptiously as possible in order to satisfy damage claims against the orgnization the union's admission of responsibility was established if any proof were needed. So what basis is there for all this stuff about communism? It is a poor alibi, but, after all, better than nothing. And when John L. Lewis is put forward, in due time, as the logical successor to Samuel Gompers, it must not be said that he is a red. It is laudable for him to stifle communism if he can, but why blame communism for Herrin?

Perilous Winter

ALREADY we are approaching the perilous months when the mines dry out and explosions of dust are to be apprehended. It is said of the foreigner who enters our mines that he is careful for a year or so and then forgets and becomes "frequent deceased." It seems to have been just so with the coal industry. It heard, largely through the Bureau of Mines, the dangers of coal dust and it listened, learned the lesson, put it partly in practice and then—forgot or almost forgot what it had learned.

Let this be a reminder, for much remains to be done. Runaways must be avoided and wires must be protected or there may be another Dolomite; water-sprinkling pipes must be guarded against frost or there may be another disaster like that at Stag Canyon. Dust must be thoroughly wetted so that it will ball in the hand. Unfortunately water will roll in dust without wetting it, consequently the application should be drenching so as to move the dust where moisture can continue to affect it.

Air conditioning is an excellent way of preventing the drying of a mine or of wetting it when dried. Little technique has developed in regard to this subject but enough is known that the work can be done effectively if not with maximum efficiency and economy. Unfortunately the air usually is supplied by a pressure fan, and the wettest part of the mine is apt to be the return airway which is least likely to be in danger.

Furthermore, if damage is done to the return airway by excessive heat and moisture it is the very part that is least readily repaired. Where also the gas is by a plenum system of ventilation put under compression it is likely to come rolling out into the roadways as soon as the fan stops. However, so much can be said in favor of conditioning the air that it should be done wherever the roof will permit, even if it be necessary to protect the roof with concrete for some distance from the fan.

Now also is the time to take careful stock of rescue and self-rescue equipment. Hardly a large explosion occurs where men could not save themselves if they had some means of traveling for a short time through the poisonous mine atmosphere.

The Coal Commission on Strikes

THE Coal Commission has issued, so far, two reports having to do with labor relations in the bituminous-coal industry. The first was published in *Coal Age* in full last week; the recommendations from the second appear this week. These results of the Commission's study of labor relations are as disappointing as the subject is important.

The first report, despite its label as a study of the causes of strikes, is a discussion of the violation of civil liberites and as such is essentially concerned with the West Virginia situation. It is a rambling document, scrupulously disposed to deal the blows in equal measure to both parties; inconclusive on the big questions and leaving us no nearer the answer than before.

Murder, arson, assault, denial of free speech and liberty of person are the principal offenses against civil liberties and it is gathered from the context of the report that these are the matters under discussion. Herrin is elaborately described, treated as a study in mob psychology and charitably excused. The Commission "chooses to give . . . the benefit of the doubt as to criminal intent" to those non-union operators who have used force in keeping the union out of their mines, and to the union for its use of force in attempting to enter. Human passions, lax administration of the laws, racial characteristics, the "irrepressible conflict between the United Mine Workers and the non-union operators" are assigned as causes for strife, but not shown to have been causes of strikes.

The bone of contention in West Virginia, in parts of Pennsylvania, Utah and other soft-coal fields is the effort of the United Mine Workers to organize the miners, an effort opposed by the operators. Strife, not strikes, has ensued. These local affairs have had little or nothing to do with the stoppage of coal production; have caused no high prices or short coal supply to the public. For this strife and warfare the coal industry in these rich, unorganized fields has been haled before the bar of public opinion time and time again in the past. What the public expects from the Coal Commission, if it expects anything here, is judgment on these moot points. It is not vouchsafed.

The coal industry itself would welcome a solution of this perplexing problem—the non-union operators one that would keep the union out and let them work in peace; the union one that would let it in. The rights of each are stated, that of the operator to have no union men and that of the union to get in if it can, and then "the Commission believes . . . it is their [the operators'] patriotic duty to make some personal sacrifices in the interest of the common weal, a principle equally applicable to the United Mine Workers."

What sacrifices? What sort of thing are they to do? The non-union operator in West Virginia reading this remarkable document must be tormented by doubt. He is patriotic—what shall he do? Any sacrifice that he may make is to let the union in. And the union, it too is patriotic. What sacrifice can it make, save to forego its right to push its organization? Does the Commission see some middle ground on which, by making mutual sacrifices, peace may be had, and both satisfied, and if so, why not state it? All that the Commission has offered is that the law must be enforced, if necessary by the federal government. In other words, all that it offers as the solemn judgment of six men, after long study of this most vital question, is the Marquis of Queensberry rules for a fight. That is why we say that its report is disappointing.

Turning to the second document, we find a detailed, scholarly, able study and discussion of labor relations and the causes of strikes. It is true that the civil liberties report slops over onto the subject of strikes at times and thus overlaps the second, giving evidence of independent preparation and subsequent lack of co-ordination. Incidentally, this second report contains, among its thirty-seven specific recommendations, several that should have been considered in connection with the problem of violations of civil liberty and peace in the non-union fields. The report on labor relations is as easy to follow as the other is difficult; the conclusions follow from the text. While everyone will not agree with these conclusions he has the opportunity of reading the evidence.

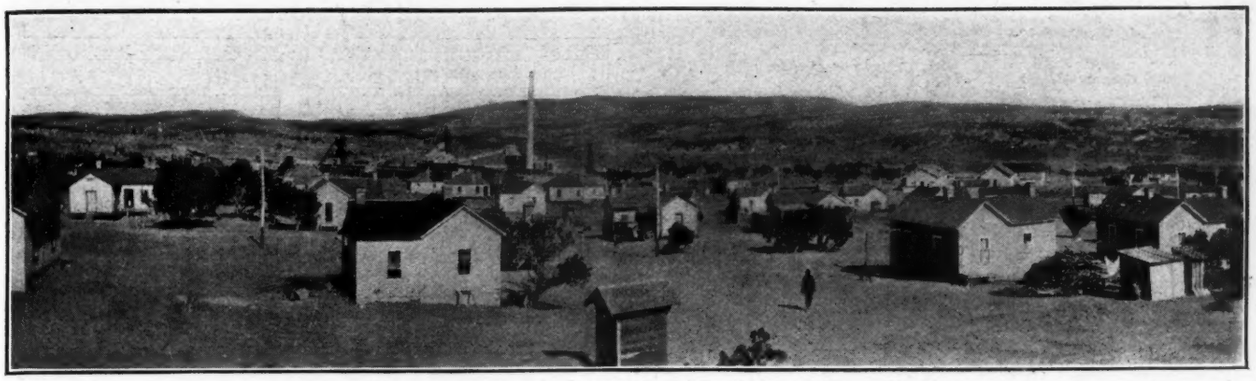
Arguing that charity begins at home, this report starts with causes of friction at their source and devotes nineteen, or half, its recommendations to suggestions for amelioration of those causes. With most of these no fair-minded operator or unionist can well disagree. The suggestion, for instance, that there should be a check weighman at non-union mines will not find favor with the non-union operator, not because he would be unfair to his men but because of his belief that such an innovation presages the union itself.

On the check-off the Commission straddles. Repeatedly urging the inherent right of a man to work without belonging to the union, it finds not that the check-off does not prevent the exercise of that right but that it should not. It recommends compulsory investigation before there be strikes, and voluntary arbitration, both sound as far as they go. It *regrets* that the United Mine Workers has given so little attention to fundamentals and *thinks* the union is facing a critical transition period, but in what direction it does not say. It doubts the value of incorporation of the union and is silent on the question of compulsory secret strike ballots.

Both documents have an abundance of sound reasoning in them, with ample preachments, plenty of platitudes, and little punch. The Commission has failed to grip the problem of the United Mine Workers as it now overpowers the coal industry and the public coal supply. Certainly it had ample evidence of the big strikes of 1919 and 1922, their causes and effects. Those are the kinds of strikes the public wants to know more about. Whether the responsibility was with the profit-seeking operator or the power-mad union official, the Commission should have dragged the offender forth by the scruff of the neck.

What is the Commission's answer to the challenge of the union that President Harding said had this country at its mercy? If compulsory advance investigation and publicity of accounts will stop a big strike, why didn't it stop the Sept. 1 strike in the hard-coal fields? If six commissioners, $600,000 and six months' investigation isn't enough for the purpose, in goodness' name, how many millions must we have? What is the use of going out of its way to pillory a few jobbers for grabbing off a few hundred dollars extra profits in pyramided sales of anthracite in New England and then let the union and Governor Pinchot put millions on the whole output?

The Coal Commission's reports on labor are disappointing, not for what they say but for what they fail to say.



Village of Gamerco, N. M., with Navajo No. 5 in Rear.

Machine Shop, Bathhouse, Houses and Other Accessory Buildings at the New Gallup American Mine*

Arrangement of Repair Shop—No Overhead Crane—All Lifting Done by Chain Blocks on Trolley Track—Bathhouse Uses Overhead Hanger System—Reason for This Practice—Brick on Edge Used for Houses

By H. B. Cooley
General Superintendent, Allen & Garcia Co., Chicago, Ill.

LARGE plants like Navajo No. 5 of the Gallup American Coal Co. require an exceptionally complete shop equipment, especially when they are located, like that plant, over 200 miles from a town where a foundry and machine shop is available. This means that provision must be made for all the repair and maintenance work needed by the mine, tipple and power plant. All lathes and large shop tools have been selected with the view of providing for the special types of work which such a plant would require, and so far as possible individual motor drives have been installed. However, overhead line shafting is not entirely eliminated, and provisions were made in the design of the roof truss for its support and for that of the forge blowers and an exhauster.

Whether to combine the storeroom with the shop building is a question that usually requires close study. If the storeroom is planned with a view of housing general mine supplies such as machine parts, bolts, etc., and in addition bulk material such as lumber, cement, etc., its size usually runs to such large proportions as to make it difficult to combine it with the shop building. If, on the other hand, a separate building is erected the supplies and materials used in the shop are not being stored conveniently to the place of use.

It is believed that the arrangement adopted at No. 5 has the advantages of both. Referring to the general plan, Fig. 1, it will be seen that part of the shop building is devoted to storage purposes. This space houses the usual supplies and equipment that are used in the shop and mine. The storekeeper has offices in this building, and all materials, as well as shop tools, are issued by requisition. The convenient location and arrangement for issuing supplies makes this system ideal, as by it much time is saved and trouble avoided.

*This is the fourth part of Mr. Cooley's article on Navajo No. 5 mine. The others appeared in *Coal Age*, Aug. 2, Aug. 16 and Sept. 13.

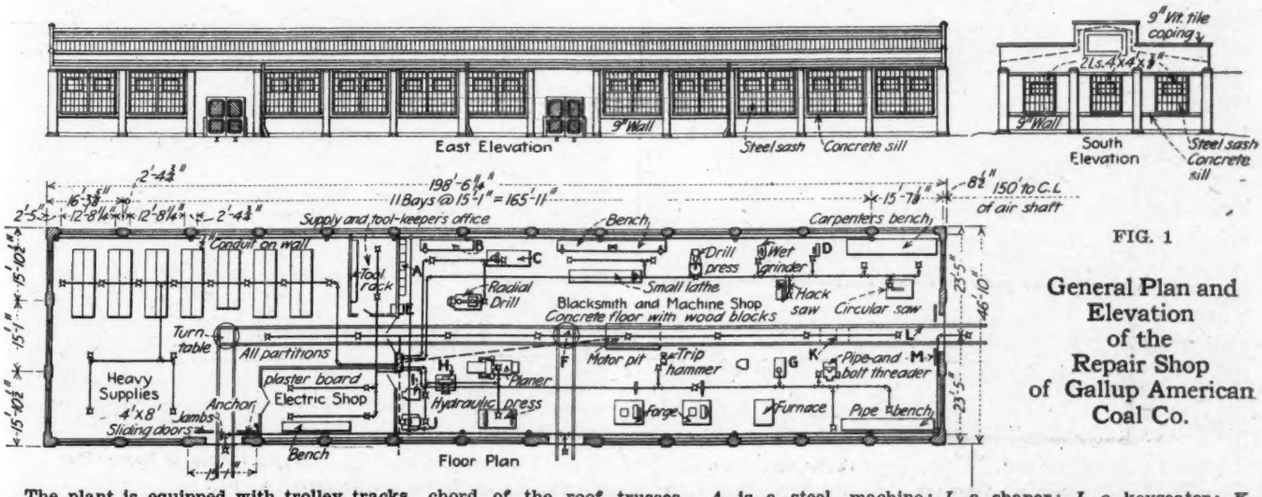


FIG. 1

General Plan and Elevation of the Repair Shop of Gallup American Coal Co.

The plant is equipped with trolley tracks instead of a crane. By means of hand-power hoists the parts can be lifted and moved along the trolley tracks on the lower chord of the roof trusses. *A* is a steel locker; *B* is a bench; *C*, a large lathe; *D*, a grindstone; *E*, tool window; *F*, industrial track; *G*, a bending frame; *H*, a milling machine; *I*, a shaper; *J*, a keyseater; *K*, track separators, ¾ in. diameter set at 4-ft. centers with four bolts; *L*, 40-lb. rails set at 40-in. gage; *M*, 4 x 8 ft. sliding doors.

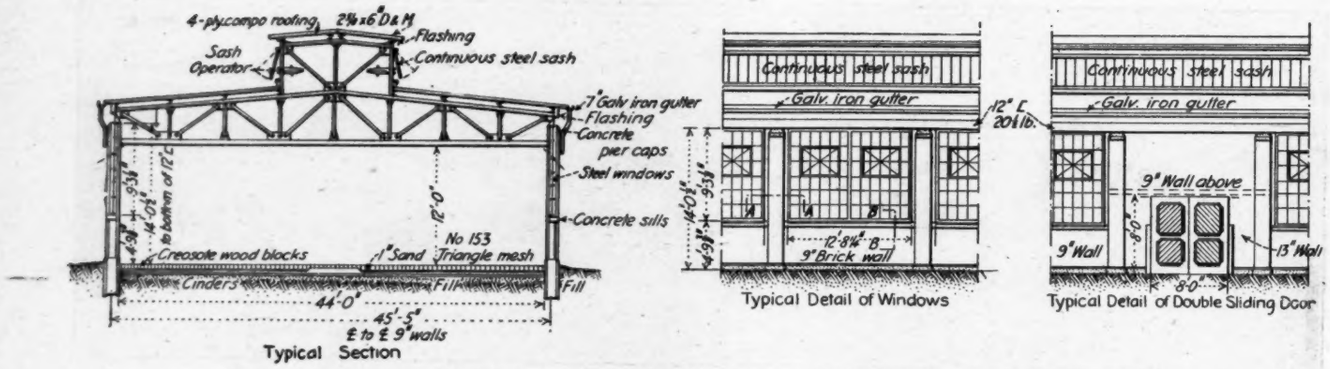


FIG. 2—ELEVATION DETAILS AND CROSS-SECTIONAL ELEVATION OF MACHINE SHOP

Under the creosoted wood blocks and a bedding of 1 in. of sand, concrete has been laid to a thickness of 5 in. over cinders well tamped and wetted down, the thickness being increased under the track in the center so as to bring the surface of the rails up to the level of the blocks. The concrete mixture is 1:2½:5 mixture. All footings are carried to soil that will sustain at least 2 tons per square foot and to a level not less than 30 in. below the grade of the original surface of the ground.

For housing bulky material which is shipped to the mine in carload lots an auxiliary warehouse has been located parallel to the material track and due north of the auxiliary shaft. The level of the floor of this building is at the proper elevation for trucking from a box car on one side and high enough to be convenient for loading to an automobile truck or mine car on the other. Material is checked in and out of this warehouse in the same manner as are small supplies at the main storeroom and by the same office force.

The combined length of the shop and storeroom building is 198 ft. 6 in., the truss centers are 15 ft. 1 in. apart and the clear span of the trusses is 44 ft.

By referring to Figs. 2, 4 and 5, it will be noticed that practically all the wall space above the sill line is glass. A good quality of hard-burned Gallup brick is used for the pilasters and wall surfaces, the roof being 3-in. tongue-and-groove sheathing covered with a 20-year guarantee composition covering. Continuous top-hung steel monitor sash, glazed with ¼-in. wire ribbed glass provide excellent ventilation and supplement the wall lighting. The sidewall sash are all steel and are glazed with ⅛-in. factory ribbed glass.

It will be noticed by referring to the plan, Fig. 1, that the industrial mine tracks enter both the side and end doors and intersect at turntables properly spaced on the shop floor. The lower chords of the roof trusses are of double-channel section and designed to serve as trolley beams. By this means material can be unloaded from the shop track and placed in convenient location for the shop mechanics. This arrangement is more economical than a continuous overhead crane, requires less headroom, does not interfere with line shafting, and is really more flexible, in that each department of the shop force may have its own trolley. This arrangement is especially convenient for repairing mine cars. One man with a trolley and chain block can easily turn a mine car upside down and then can dismantle or repair it.

The miners' bathhouse is an innovation in this part of the New Mexico field. The men have adopted it as their own and lend every effort to assist in keeping it clean and orderly. Fig. 7 shows the general floor plan and Figs. 4 and 6 show exterior and interior views respectively. Although there is nothing unusual in the design it is believed that the best modern practice is represented. The overhead hanger system was adopted as being more convenient and sanitary, as offering a lesser fire hazard and as much more economical in floor space.

It is true that the advocate of the locker system can

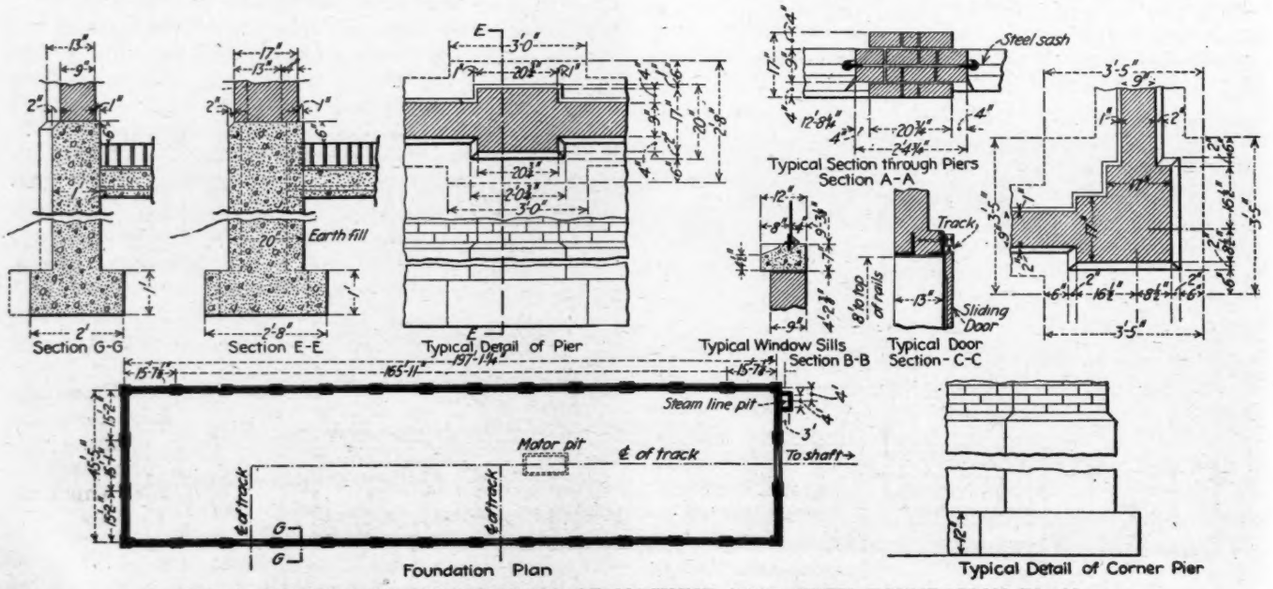


FIG. 3—DETAILS OF FOUNDATIONS OF MACHINE SHOP WITH FOUNDATION PLAN

Concrete in floor is reinforced with No. 153 triangle wire mesh. All the brick piers are laid in cement mortar. The building has eleven bays each 15 ft. 1 in. long. The building lies with its principal axis due north and south

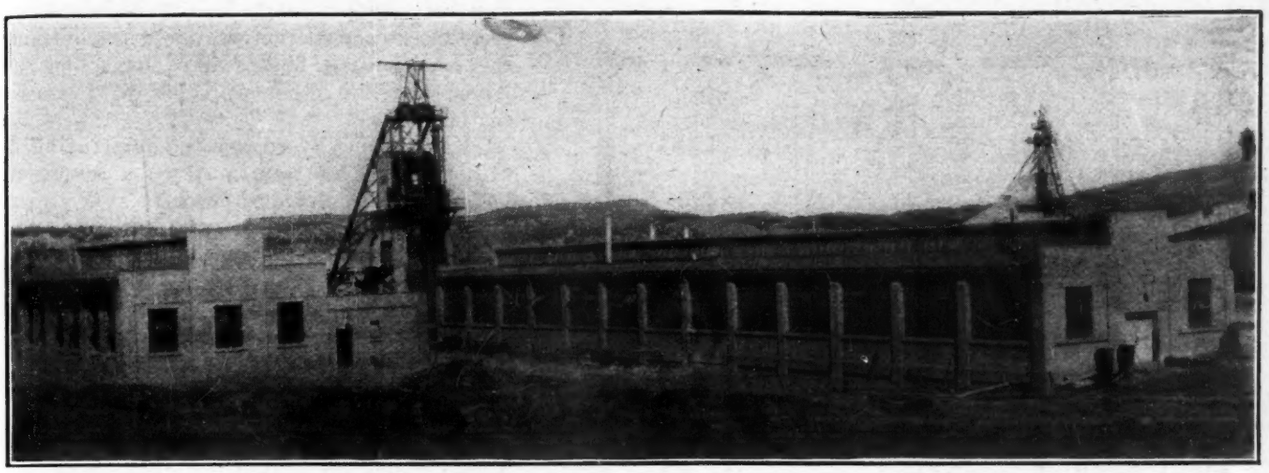


FIG. 4—WASHHOUSE AND MACHINE SHOP; AUXILIARY AND MAIN TIPPLE IN REARGROUND

The well-lighted machine shop attracts immediate attention, nearly all the walls being glass above bench level, the light being supplemented by sash in the monitor

prove that "per man" the locker system requires no more room than the hanger system. But observation has shown that congestion is much more apparent in a clothes room containing lockers than one where the floor space is clear except for benches. In fact in designing a washhouse it is well to see that the men have not only a place to put their clothes but enough room in which to change them conveniently.

The hanger room has 2,664 sq.ft. of floor area and the ceiling is arranged for carrying 510 hangers. This allows 5.2 sq.ft. per man, the hangers being spaced 2 ft. apart from center to center.

The washroom is placed at one side of the hanger room and contains twenty-eight showers. There are four rows of showers, spaced seven in a row, with 4 ft. 3 in. between each shower head and the next. A 2-in. wood partition covered with zinc on each side prevents splashing and serves as a carrier for the shower heads.

Hot water is obtained from a 500-gallon storage tank located in the basement, with a heating capacity of 1,500 gallons per hour. It has a thermostatic control, and the water temperature is maintained constant during the peak periods of its use. Steam at 175 lb. pressure is taken from the main steam line and reduced to 15 lb. by means of a reducing-pressure valve. This steam is used to feed the coils of the water heater; and this condensate, together with that from the heating coils, is all returned to the boiler room.

At one end of the building is a modern first-aid room where minor injuries can be treated or where in case of serious injuries the patient can be given temporary care until the doctor arrives and the injured man is taken to the hospital. At the other end of the building is a bosses' shower and a change room which is amply large not only for the management but for the accommodation of visitors.

The same general type of construction is used for the washhouse as for the shop building, and provisions are made for increasing the capacity without changing the general scheme.

An essential part of the development of a mine in this field is the housing of the employees. The mining camps adjacent to the present workings of the company are well established, and their abandonment of course will be gradual. However, it is planned ultimately to consolidate the three old camps with the new town, and careful plans have been made for so doing. Fortunately, the surface adjacent to the mine site lent itself admirably to a town plan. The entire town site is on high ground overlooking a broad valley, with just

FIG. 5—INTERIOR OF MACHINE SHOP

The lower chords of the trusses are arranged to act as overhead trolleys for handling material. Thus the space is not interfered with by the presence of a crane. Many of the drives are electrical, but, as will be noted, some are through belting.

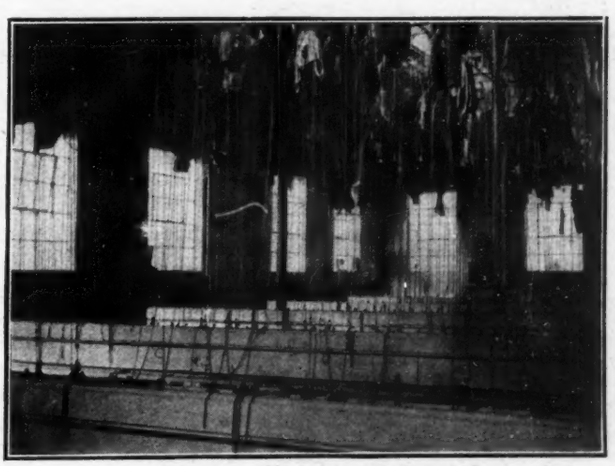


FIG. 6—INTERIOR OF HANGER OR DRESSING ROOM

Hangers are spaced at 2 ft. centers. Lockers are used only in bosses' dressing room, the overhead hangers being advocated as giving freer space for dressing. Rapid drying of clothes, which this method favors, is not needed at mines so dry as this.

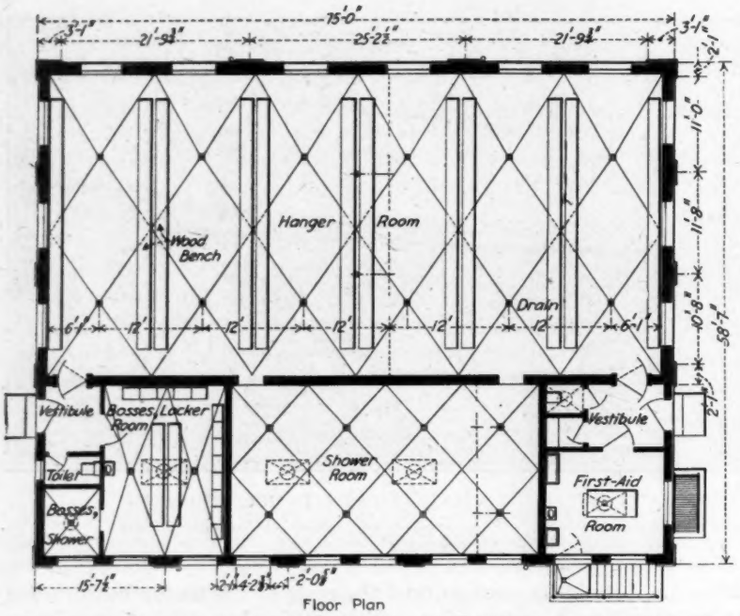


FIG. 6—PLAN AND CROSS-SECTIONAL ELEVATION OF BATHHOUSE

The bosses' shower is separated from the bosses' locker room by a canvas curtain. The interior of the hanger room is 35 x 72 ft. 2 in. The shower room is 20 x 36 ft.; the bosses' locker room 14 ft. 3 in. x 20 ft. and the first-aid room 12 x 14 ft.

enough variation in surface contour to relieve the monotony and provide excellent drainage.

The street layout, the pole lines for lighting, the sewer and water lines have all been planned and the construction program arranged along definite and predetermined lines, so that the ultimate development will present a systematic and practicable arrangement.

One of the features to be considered in this field is the diversity of races. In addition to the usual nationalities common to the average mining camp, we find the Mexicans in large numbers and the Navajo Indians ranging in number from 1 to 5 per cent of the total. The Mexicans prefer to live in more or less segregated quarters, and a Mexican village has been started somewhat apart from the main camp. The Navajos build their own "hoogans," and the solution of their housing problems does not rest on the mine owner.

An entire block has been reserved for school purposes. All the frontage on Navajo Ave. from First to Fifth Streets is reserved for company buildings and houses. A clubhouse, a hospital, executive offices, etc., are some of the buildings that have been erected on that reservation. All of these facilities are now located either in the other camps or in the town of Gallup, and mention will be made of them later.

A government post office was established early in the development period and the name Gamerco (Gallup AMERican COal) was used to christen the town and post office. A rooming house accommodating 40 men and a boarding house for about double this number were the first buildings erected on the new town site. These buildings have all modern facilities, steam heat, electric lights, toilet and bath, and are maintained under excellent management.

The standard type of miner's house is shown in Fig. 10. The question of what material to use in their construction was only decided after the building of several "experimental" houses. The use of adobe brick is not unsuccessful in this climate and is quite generally used among the natives. Buildings of this material are far from being vermin proof, and it was this objection that eliminated the use of adobe. Concrete block construction was too expensive and the experimental houses were built, one of frame and the other of brick with stucco coating.

The local brickyard was manufacturing a rather porous and comparatively inexpensive building brick. Standard brick from this yard were laid up on edge instead of flat, using the "Ideal" method of erection. This type of wall reduces the number of brick required approximately one-third and gives a hollow wall which can be plastered without the use of furring. After comparing initial cost, maintenance, depreciation, etc., the brick wall with stucco interior was adopted.

With the consolidation of the mining work, houses will be available at the other camps, and these are being moved to Gamerco. The entire Heaton camp has already been transferred to the new town site by means of two 5-ton auto trucks and a specially built carriage. The average distance the houses were moved was two miles, and the rate of moving was two houses per day.

At present there are approximately one hundred houses available at the new camp, all equipped with electric lights and modern conveniences. As yet there are not sufficient dwellings at Gamerco to house the employees at Mine No. 5, and those who live in the other camps are taken to and from their work in busses which are provided without expense to the employees.

Excellent school facilities are provided for all children under high-school age. A modern kindergarten is maintained at the Gibson camp and the bungalow type of school building has been adopted at Gamerco. Fig. 12 shows one of two such buildings now in use, it having been deemed more advisable to build the schools in small units of two or three rooms each, as needed, rather than to have one large building. After the students finish the eighth grade it is necessary for them to go to Gallup to attend high school. The distance is about 3½ miles, and bus service is maintained by the coal company without charge to the students or their parents. Athletic sports are encouraged and playground facilities are being provided.

Despite the difficulties and cost of obtaining water, which as has been mentioned, is pumped from deep wells, an ample supply is furnished for camp use. All of the newer tenant houses are provided with running water, toilet and bath. This is also true of the board-

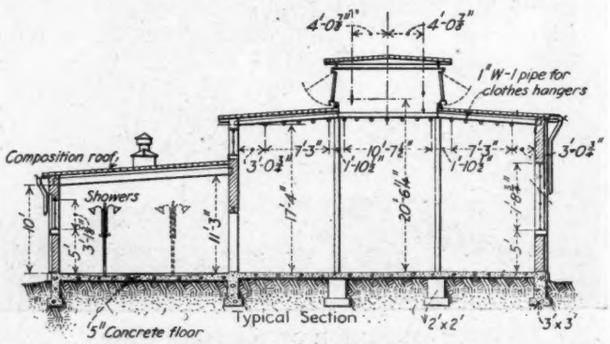


FIG. 8—CROSS-SECTIONAL ELEVATION OF BATHHOUSE

The floor consists of 5 in. of concrete, laid on a 1 in. bed of cinders. In order to make the surface smooth for the barefooted a surface of cement 1 in. thick covers the concrete as a finish.

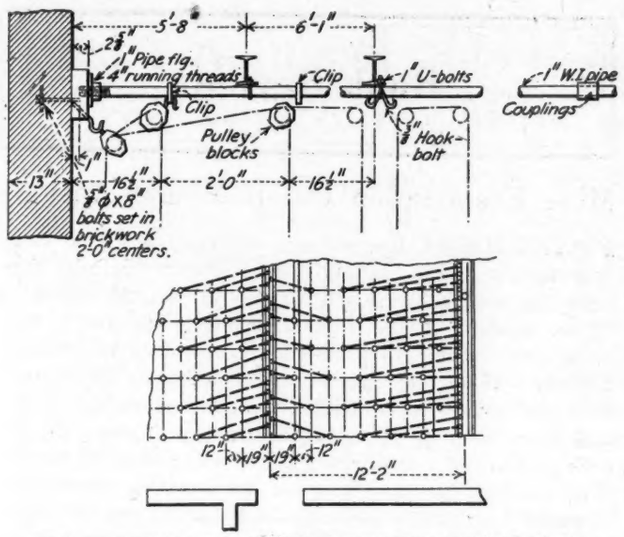


FIG. 9—DETAIL OF CLOTHES SUSPENSION METHODS

There are 85 hangers in each bay and 68 I-bolts in the back of each bench. The benches are 29 ft. 1½ in. long.

ing houses. The miners' washhouse is freely used. Insofar as possible, wastefulness of this fluid, so precious in the desert country, is discouraged, but no attempt is made to curtail the supply. An outdoor swimming pool 35x75 ft. has recently been constructed of reinforced concrete. This is a convenience which is greatly enjoyed, not alone by the children but by the grown folks as well. The use of the tank is free to employees and their families.

Sewage disposal is taken care of by septic tanks placed in convenient locations with respect to the drainage lines. The effluent from these tanks all flows to a deep arroyo some half mile from the town site, and it is surprising how quickly the water disappears in the soil of the desert "washes."

The mine safety station is equipped with eighteen Draeger helmets, twelve of the large two-hour type and six of the small half-hour type. It is planned in the immediate future to change the large Draeger helmets for other equipment. The auxiliary apparatus is quite complete and includes a pulmotor, inhalators, an electrically driven oxygen pump, large supplies of regenerators and oxygen, a portable mine-rescue telephone, safety ropes, fire hose, safety lamps and flashlights.

The station also is equipped with apparatus for the collection and analysis of samples of mine air and gases. Large supplies of material for first-aid work are kept and frequent instruction is given to classes in first aid to the injured. A large number of men have been trained both in mine-rescue work and first-aid, which training is being carried on as deemed necessary. Regular and systematic inspections of the mines are made with a view to avoiding accidents, and safety committees have been organized among the employees and foremen.

The first-aid and helmet station is under the direction of L. Kuhns, who has shown unusual ability not alone in the management of the rescue station but in the training of first-aid teams and the organization of safety-first movements. Mr. Kuhns' work has been recognized throughout the State of New Mexico, and the U. S. Bureau of Mines places his work at the head of the list in that state.

In the list of equipment a portable mine-rescue telephone was included. This is indeed a unique piece of apparatus. It consists of a complete self-contained telephone system, the entire outfit being housed in a chest much smaller than the ordinary steamer trunk. The main cable is on a reel built integral with the housing. The portable cable is on small reels about 4 in. in diameter and 8 in. long. These carry about 700 ft. of wire.

In order that they may be used in connection with helmet apparatus, special transmitting and receiving apparatus have been designed. The transmitter, instead of gathering the vocal impressions from the mouth, is arranged for attaching to the throat exactly over the Adam's apple. An interesting use for this apparatus was discovered by the engineering force during the progress of a mine fire.

In one of the older portions of the mine a fire in the upper coal measures suddenly developed in such proportions as to make it necessary to abandon one of the main entries. To drive a new entry required a survey running through this smoke-filled territory. By the use of helmets and with the aid of the portable telephone the survey, with necessary elevations, etc., was easily completed and all the data obtained for driving the new entry.

In fairness to the present management it should be said that no survey under such difficult conditions will have to be made at any time in the future, as all roadways are projected well in advance and, moreover, elevations are recorded in all parts of the mine.

The coal company maintains a movie theater, where

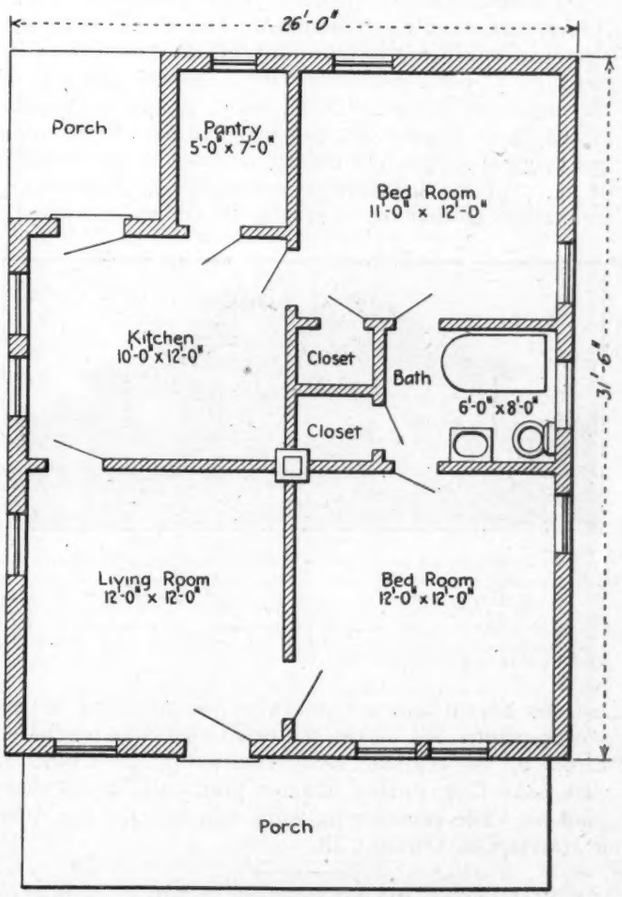


FIG. 10—PLAN OF THE STANDARD MINER'S HOUSE

In this dry region with no water till immense depths are reached and then not a copious supply, it is pleasing to see such complete bathrooms. The houses are of brick. Note also the generous closet room and the pantry. The West certainly sets standards of living. The pioneers are not long in getting back to "creature comforts."

FIG. 10—HOUSES LIKE THOSE SHOWN IN FIG. 9
The brick walls are covered on the exterior with stucco. Note the trusty electric poles in contrast to the twisty native growth so characteristic of arid regions.

first-run films of the better class are shown three times a week. This building also is available for dances and other public gatherings. Outdoor sports are encouraged and the Gamerco baseball team is surpassed by few in the state. An excellent ball ground is maintained by the coal company and concrete tennis courts have been built for employees' use.

Horse races and other sports also are held at the ball park, the Navajo Indians taking no small part in these diversions. Clubhouses equipped with pool tables have been erected at the Gibson and Navajo camps. Soft drinks, ice cream, etc., also are sold at these clubs. They are operated by a concessionnaire under the general supervision of the company.

To Horace Moses, general superintendent; J. E. Hanes, assistant superintendent, and C. E. Williams, electrical engineer, is due most of the credit for the handling of the construction work and the approval of the engineers' designs. J. M. Sully, managing director of the Chino Copper Co., had no small part in planning the original layout and greatly assisted in the solution of many of the engineering problems. E. J. Franklin, consulting mechanical engineer, deserves much credit

FIG. 11—BUNGALOW "UNIT" SCHOOLHOUSE
The "unit" type of schoolhouse has been favorably received in the West though some still advocate large schoolhouses of many rooms. It will be seen that this schoolhouse though small is substantial and cheerful with the windows becurtained—a self-respecting place in which to learn the duties of good citizenship and to obtain sound learning.

for his advice and assistance in the planning of the power plant. All of the material used was purchased direct by the company's organization, R. E. Clark, of Salt Lake City, having handled practically all of these matters. The engineering work was done by the Allen & Garcia Co., Chicago, Ill.

E. D. GARDNER, MINING ENGINEER OF THE U. S. BUREAU OF MINES, recently spent several weeks in the vicinity of Denver, Colo., conducting tests with liquid-oxygen explosives. Besides making field tests, considerable work has been done toward developing a new low-cost cartridge as a carrier for the liquid oxygen.

Book Reviews

Mine Examination Questions and Answers

CATECHISMS are always interesting to a large section of the reading public. Psychologically they have the great advantage that they attract the attention of the reader. Asked a question one is spurred to find an answer, which in a catechism one does by reading further. When merely confronted with a title or caption one is not faced with the apparent necessity for making a reply or of taking a measure of one's mental ability, and not being convicted of any defect of knowledge is not intrigued to read the solution presented. In many instances a question leads almost two-thirds of the way to knowledge, and the man who knows how to question is likely to be well instructed because he has set in motion impulses to thought and to inquiry. The bulk of any man's knowledge, especially the more worthwhile part of it, comes from questions asked and answered, whether of himself or some other man or of a book.

A book has just been published containing three volumes of questions—not propounded by the author but put for the puzzlement and bedevilment of those who seek to be mine foremen and answered by James T. Beard, who has a happy faculty for expression and a power of simplicity in explanation. The question and answer method being the best method of teaching and the teaching being kept strictly within the domain of questions already asked of candidates for mine inspector, mine foreman, assistant foreman or fireboss, the book is eminently practical.

All of these qualities might have been spoiled if the questions had not been properly grouped. Attention has been given to this point. A series of questions relate to air, another series to the chemistry of gases, a third to specific gravity and weight of gases, and so forth. Thus we have a veritable textbook arranged in as orderly a manner as if the questions in the catechism as well as the answers had been written by the author instead of culled with infinite pains from the many actual examination papers which inspectors and others prepared for the quizzing of postulants for places of authority in the mines of the various states and provinces of North America. There are 2,975 questions in the three volumes. The presentation of them and of their answers takes 846 pages measuring 5½x8¼ in. This is followed by an index of 26 pages, making it easy to find any kind of information covered.

The minds of all of us need restocking. As time goes on information of earlier years slides gently from the brain cells in which we had it confined or becomes encysted so that it is no longer of any use. This book will be of help to the superintendent who wants to refresh his memory with the fundamentals of mining problems or who was graduated to his position without either college education or the experience and "booking" that a mine foreman receives. It has a yet more vital interest to those around the mines who desire to obtain certificates of competency.

The book which is bound in cloth, is published by the McGraw-Hill Book Co., 370 Seventh Ave., New York City.

What Equipment Should Be Provided for Hoisting Men And Ventilating Mine When Electric Power Fails*

Discarded Boilers Should Not Be Used for Such Purposes, as Maintaining Steam Pressure Is Too Costly—Gasoline Engines Preferable—Small Engines Fit Slow Speed and Light Hoist Loads in Raising Men

BY GRAHAM BRIGHT
Pittsburgh, Pa.

BEFORE the advent of central stations all coal and metal mines generated their own power, and in many cases these isolated power plants gave a fair continuity of service, which central stations with their long transmission lines often failed to do. In coal mines that produce much gas, it is essential that power be available at all times for operating the ventilating fan and also, wherever the mine is of the shaft type, for driving the hoist. With an isolated power plant and gaseous shaft mine even if trouble should develop with the fan a disaster is not inevitable, for the men can be hoisted quickly. On the other hand, if trouble develops with the hoist, the fan can be kept in operation, and there will be no necessity for haste in getting the men from the mine.

Central-station power is now being used extensively for mine plants and the discontinuity of the service which is sometimes in evidence with power of this kind has unusual importance for the operators of gaseous mines. Inherently the central station is much more reliable than any isolated plant, but trouble may occur on the transmission lines and in consequence no power may be transmitted for a long time.

For this reason some mines have kept their steam equipment intact and ready for operation in case purchased power should fail. This is an expensive procedure, for the boiler plant must be kept fired at all times so that emergency power will be quickly available.

GASOLINE-DRIVEN GENERATORS OFTEN USED

In many instances generators driven by gasoline engines have been installed to furnish emergency power for the service hoist. As most of these are of the alternating-current type the generator of the set thus driven usually is of the same type and is arranged to drive the service hoist motor at full speed, or an extra motor is provided that can be thrown into gear on either the main or service hoist and the hoist operated at a greatly reduced speed. This latter arrangement is used because large gasoline-engine driven units are difficult and expensive to obtain and install.

I recently developed a plan by which the main hoist and the fan can both be operated at reduced speeds, in case the power from the central station fails. In this plan the gasoline-engine driven generator operates at a reduced frequency if alternating current is used, and at a reduced voltage if on a direct-current system.

With alternating current the engine speed and generator are arranged to give a frequency of approximately one-half the normal frequency, but this can be varied to meet the particular conditions at any mine. In case the generator operates at 30 cycles the voltage will be 1,100 if the hoist and fan are operating on 2,200 volts, 60 cycles. The motors will then operate at one-half speed with the same control and will give a fair power factor and efficiency, for the voltage has been reduced in the same ratio as the frequency. In operating the main hoist in many cases the load of men will be about one-half of the load of coal or ore. As, in addition, the speed is reduced one-half, the power required will be about one-fourth of that necessary when hoisting coal or ore.

When the fan is operating at one-half speed it will supply sufficient air to keep the mine clear for a short time and will require from one-fifth to one-sixth of the power necessary to operate at full speed. By adjusting the engine speed and voltage the fan speed can be increased to 60 or 70 per cent of the full speed, if this is necessary.

Let us assume that during normal operation the main hoist will require a maximum of 600 hp. and the fan 150 hp. Assuming that the load of men will weigh one-half as much as the load of coal or ore, the power required for the hoist at one-half speed will be approximately 150 hp., and the power for the fan 30 hp., making a total of 180 hp. This power could be readily supplied by the gasoline-engine driven unit having an engine of approximately 250-hp. and a generator of about 150-kva. capacity.

Should it be desired to operate the service hoist, a

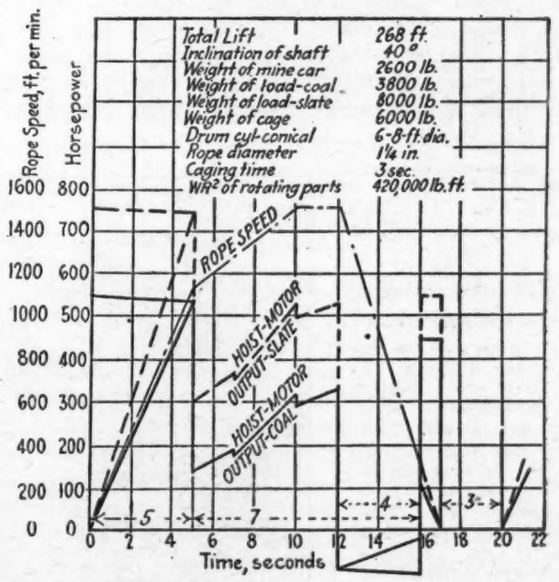


FIG. 1—APPROXIMATE HOIST CYCLE, MANIFOLD NO. 2.
The power at this hoist in normal running is 60-cycle alternating current at 2,200 volts. That is only necessary when the hoist is under the normal load, that is, lifting coal or rock and running at maximum hoisting speed.

*Paper prepared for the field meeting of the American Institute of Mining and Metallurgical Engineers and for lack of time presented by title only at the session of Aug. 30, held in Montreal, Que.

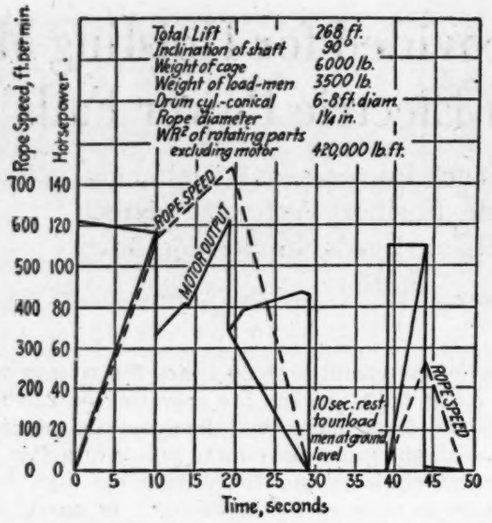


FIG. 2—APPROXIMATE HOIST CYCLE AT SAME MINE.
Here the hoist is raising only men and doing it at about half the normal running speed, the power being reduced in proportion to the reduction in load and velocity. Note that the scale of this illustration in seconds, horsepower and rope speed is greater than in Fig. 1, thus disguising the relative magnitude of these factors.

reduction of about 25 per cent would possibly be more desirable than 50 per cent in which case both fan and hoist would be operated at 75 per cent of full speed.

The operation of this system would be very simple, in that no change would be required in the control system of either the hoist or the fan motor. In case of failure of power the gasoline-engine driven set can be started by means of a push button and when a double-throw switch is thrown, power at reduced frequency is available for either the fan or the hoist. If the fan has automatic control it can be placed in operation within 30 to 60 seconds after the power fails.

An outfit similar to that described will soon be installed at one of the mines of the Youghiogheny & Ohio Coal Co., near Pittsburgh, this mine having shafts fairly close together, each equipped with a 400-hp. 2,200-volt three-phase 60-cycle hoist motor and a 150-hp. 2,200-volt three-phase 60-cycle fan motor. Fig. 1 shows the normal cycle when hoisting both coal and slate. Fig. 2 shows the hoisting cycle when handling men and using power from the gasoline-engine driven generator at 30 cycles. This cycle indicates that about 140 hp. would be the maximum demand on the generator for hoisting.

Both hoists could be operated from an engine-driven set of sufficient capacity to operate one hoist if it is arranged that both hoists are not operated at the same time. This could be taken care of by a signal system, which would permit one hoist being operated while the other hoist was loading and unloading. As each fan would require about 25 hp. at one-half speed, one gasoline-engine driven generator could supply power for both fans and both hoists.

The capacity of the set being installed is 250 hp. for the gasoline engine and 175-kva. 1,100-volt three-phase 30-cycle generator operating at 900 r.p.m. This generator will be equipped with a voltage regulator, which is essential when using an alternating-current generator with this type of drive. Fig. 3 illustrates a gasoline-engine driven generator of the direct-current type. The speed of 900 r.p.m. is a little low for a high-grade gasoline engine, but was selected largely because a two-pole generator was not available.

With a two-pole generator the speed could be 1,800 r.p.m. This speed may be somewhat high, but if it could be obtained would greatly reduce the cost of the gasoline engine. The two-pole generator, however, does not lend itself to increase in speed over 25 cycles, which may in many cases be desirable. With a speed of 900 r.p.m. the gasoline engine is capable of operating up to 1,200 r.p.m. if conditions at the mine warrant this increase in speed and frequency.

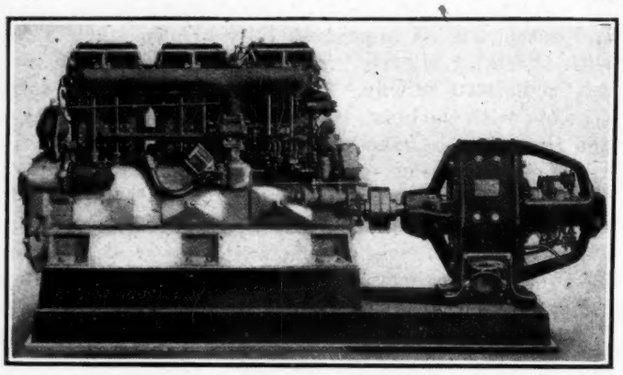


FIG. 3—GASOLINE-ENGINE DRIVING MOTOR.
This motor is of direct-current type. If direct current is used with field control on the hoist motor an engine of higher speed can be selected, thus reducing its cost and weight.

If direct current is used at the mine with field control on the hoist motor, an engine of higher speed can

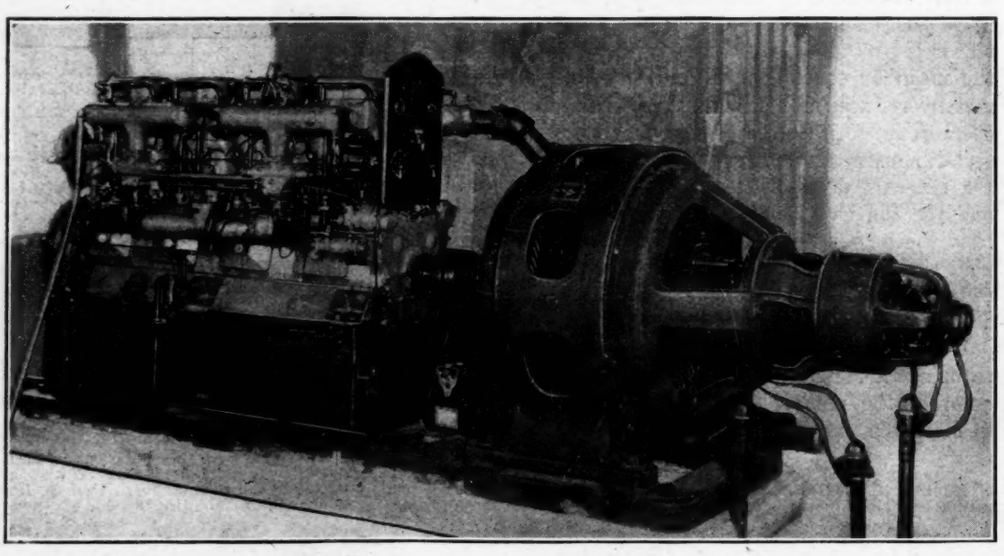


FIG. 4

Gasoline-Driven Alternator

A generator run by a gas engine would avoid the necessity for keeping boilers under steam at all hours ready to take up the work should the purchased power fail. This illustration shows a 175-hp. gasoline engine driving a 100-kva. alternating-current unit.

be selected, which will reduce the cost and weight of the gasoline engine. This is important, as the engine is much more expensive than the generator. By means of field control, heavy torques for starting can be obtained with little power required from the engine itself. The engine can be worked up to its full capacity by selecting the proper voltage for the generator. If necessary, the generator can be equipped with a differential compound field which will automatically prevent overloading the engine. The control of this equipment would be simple and would not require any change in the control equipment of the main hoist or fan.

Using a gasoline-engine driven generator at reduced frequency on reduced voltage is much less expensive than retaining the old steam equipment and keeping it ready for emergency use at all times, or using gasoline-engine driven generators at full frequency and full voltage. By selecting a high-grade engine and generator, the equipment should be ready for instant service and should take satisfactory care of the supply of emergency power in case the power from an outside source should fail.

Standard Mining Machine Readily Adapted To Conditions at Spadra, Arkansas

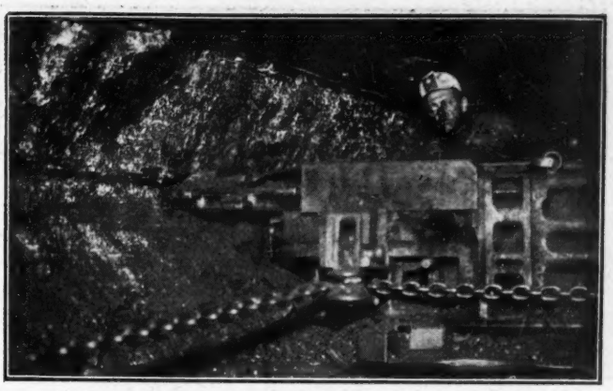
THE peculiar conditions under which semi-anthracite is mined in the Spadra field, Arkansas, has already been described in *Coal Age* in the issue of March 15, 1923. They have been met by the construction of a mining machine especially adapted to the needs of that region. At Spadra is found a bed of coal 40 in. thick and characterized by a center band ranging from a hairline to 4 or 5 in. in width. The solid shooting which formerly prevailed broke 70 per cent of the coal to screenings, for which ordinarily there is little market.

After a long battle with the miners' union, a scale was adopted for the operating of machines and the introduction of these has since reduced the proportion of screenings to less than 40 per cent of the whole output. Unfortunately the market has not absorbed enough coal this summer to raise the average running time in Arkansas the 20 per cent expected. However, in the Spadra field and in that alone the running time has been somewhat improved over that prevalent when coal was mined by solid shooting.

Though the field is small, ten of its mines already are using machines. One of these employs continuous undercutters working along the bottom of the seam

MAKING SUMPING CUT IN CLAY PARTING OF SEAM

The machine adapted for the Spadra field is only 19 in. high, but, mounted on a skid, it can be raised or lowered to bring the cutter bar into position. The uniformity of the parting makes this an easy matter.

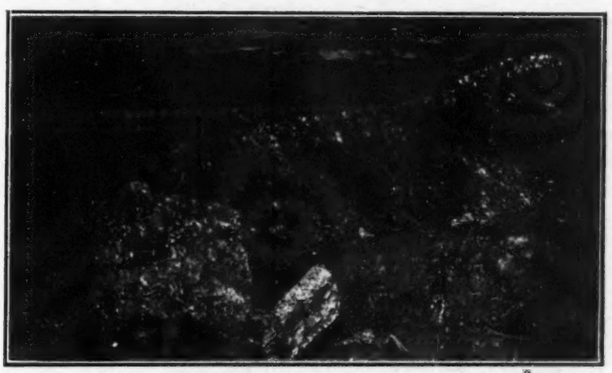


CUTTING ACROSS THE FACE OF THE ROOM

The machine, making a 5-in. kerf, practically cleans the Spadra coal, for the parting is seldom thicker than the cut and there is little other removable impurity in the whole seam.

but the other nine mines operate a continuous overcutter called the Sullivan CE-11, which is an adaptation of the manufacturer's CE-9, a combination low-bed room-and-pillar and longwall machine. Because the Spadra characteristic parting is found from 13 to 24 in. above the floor, the cutter bar of the original type of undercutting machine was swung around 180 deg. on its hanger so that the bar would be in line with the top of the machine frame instead of at the bottom of it.

When not resting on skids the machine is 19 in. high and when mounted on a standard self-propelling truck stands 30 in. high above the track. A drop axle also is available. This reduces the height of the cut to 24 in., thus varying the level at which the machine makes its cut. Consequently by care in operation it



SOLID SHOOTING PRODUCED NO LUMPS LIKE THESE

One of the Spadra field's many handicaps was that before the adoption of machines the slack proportion ran as high as 80 per cent in places, though the market for screenings usually was poor. The machines have reduced the proportion to less than 40 per cent. Augers have been placed on top of the coal to show that the coal has broken neatly from the roof.

can be made to excavate its 5 in. in the dirt parting wherever that may happen to be. The cutting process cleans the coal before light shots, placed in the top and bottom, loosens it in big lumps. The location of the parting is so uniform in each mine that a non-adjustable type of skid was adopted. Slight variations are satisfactorily met by skidding the machine up on props or cap pieces.

Even though, in modifying the older type of machine for Spadra conditions, the cutter bar was reversed from bottom to top, the drive sprockets and gearing were so reconstructed as to permit the operation of the chain in the normal direction. In other respects the machine is the same in handling and in mechanism as the standard undercutter. It works equally well in room and longwall faces.

New Equipment

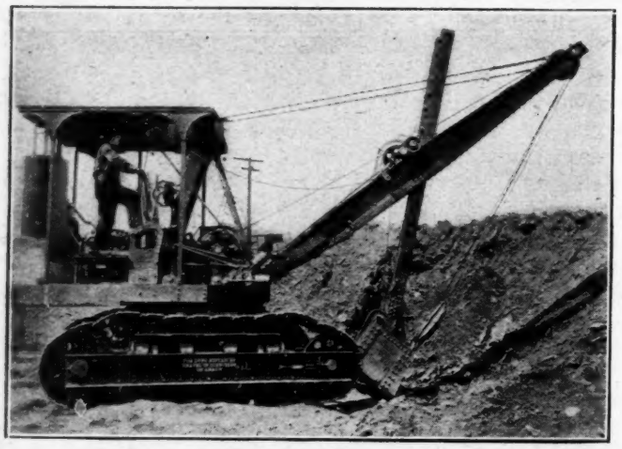
A New Gasoline Dipper Shovel

A GASOLINE-DRIVEN power shovel operated entirely with gears and shafts is the latest improvement in this type of machinery announced by the Orton & Steinbrenner Co., of Chicago, Ill., and Huntington, Ind.

On account of the development of the gasoline motor various schemes have been put forward during the last few years in the attempt to adapt this form of power to a dipper shovel. The principal difficulty was that it became necessary to provide an arrangement to take the place of the independent source of power for the reversible crowding motion of the dipper stick.

The positive gear drive on the Orton & Steinbrenner Co. shovel is simple and the number of parts few. At the bottom of the boom connection is a shaft carrying double steel bevel gears and bronze friction clutches. This shaft is concentric with the pivot of the boom and consequently is independent of its position. The boom can be used at any angle to suit the exigencies of the work. A practical shovel-man can readily see the great advantage of this arrangement.

Along the boom is a steel shaft carrying two bevel pinions, one meshing at the bottom with the gears on the horizontal shaft, and the other at the top meshing



GASOLINE ENGINE DRIVEN SHOVEL

The main advantage of this shovel is that it includes its own power plant and drive; no boilers or power house being necessary.

with gears on a countershaft located about half way up the boom. This latter shaft carries a brake and "slip friction," and is geared directly to the cast steel rack on the dipper stick.

With this method a minimum number of levers are required, the operator being at ease all the time and not subject to fatigue. The simplicity of parts also is of great advantage in converting the shovel into a clamshell outfit, dragline or skimmer rig.

The power is supplied by a heavy-duty 4-cylinder "Climax" motor, which is designed with a view of economical use of gasoline.

Another exclusive feature of the machine is the flexible crawling tread. Full advantage has been taken of the experience gained in the design of tanks used in the World War. It was proved conclusively that flexibility and lubrication of the tread and tread rollers was absolutely necessary to their operation. Experiments and developments during the last few years prove the absolute soundness of this type of construction. These flexible treads adjust themselves readily to the ground surface, equalizing the weight of the machine and distributing it over a considerable length of tread, instead of concentrating it on one roller or tread casting.

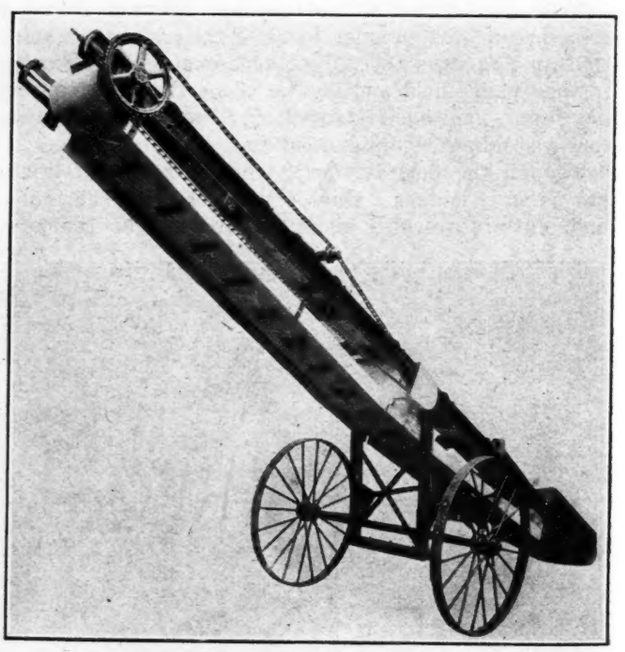
Alemite fittings are used exclusively in lubrication. These provide the quickest and most effective means yet devised for getting the grease into the bearings. Steering is accomplished by one man in the cab. The drive is by means of steel shafting and bevel gears throughout.

On the main horizontal drive shaft are two brake wheels by means of which each tread may be operated independently or both may act together. The mechanical differential arrangement is exactly similar to that used on automobiles.

To use it as a crane it is only necessary to take off the shovel boom and attach the crane boom; the crowding frictions for operating the dipper, being carried by the shovel boom and an integral part of it, are removed with it. When furnished with double drums the shovel can be used interchangeably with the crane. With the crane boom attached, any of the various types of buckets or scoops can be used, such as clamshell, dragline, skimmer scoop, or trench hoe; pile driver leads may be swung from the tip of the boom.

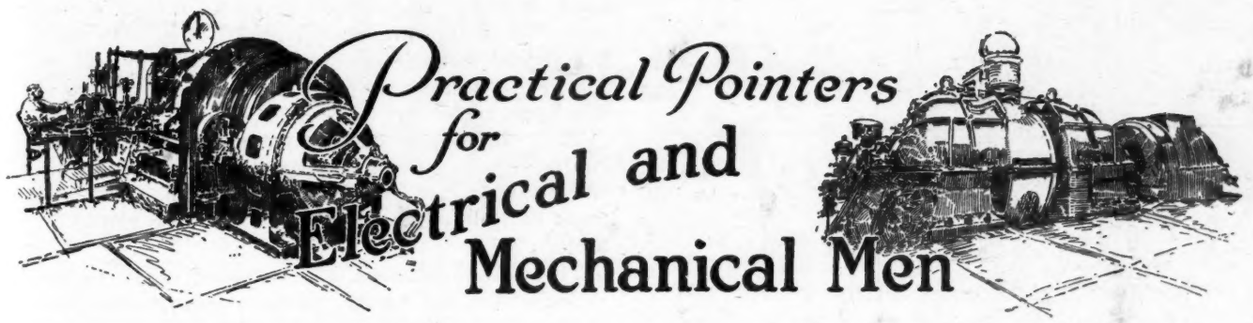
Portable Coal Loader

A PORTABLE belt conveyor particularly applicable to the handling of coal is shown in the accompanying photograph. Shippers and coal dealers are effecting large savings through the use of mechanical loading devices. Therefore this particular conveyor doubtless will find a large field for application in coal handling. This conveyor, known as the "Cub" portable loader, is manufactured by the Link-Belt Co. and is furnished at a moderate cost.



LINK-BELT CO. "CUB" CONVEYOR

Portable conveyor 21 ft. long complete with underneath lowering mechanism.

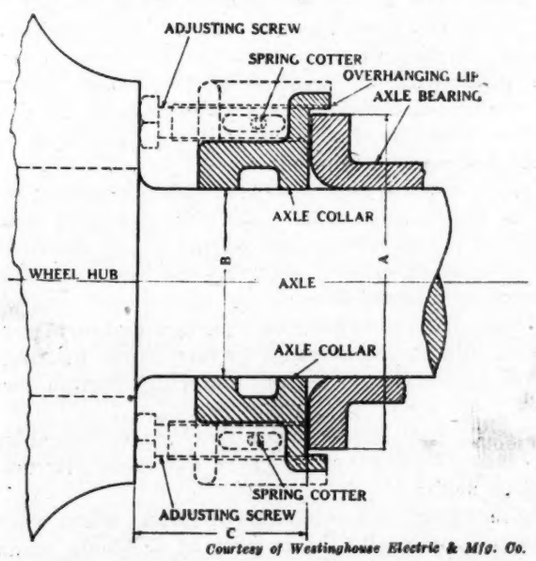


Axle Collar for Keeping Gear and Pinion In Alignment on Locomotives

THE stress and strain to which electric locomotives in mining service are subjected necessitates some means for keeping the pinion on the motor shaft properly meshed and in alignment with the gear on the driving axle. Unless the gear and pinion are in alignment the teeth will not wear uniformly over the entire width.

The function of an axle collar therefore is to keep the motor properly located on the axle so that the center line of the pinion on the motor shaft will line up with the center line of the gear on the axle. The length of axle collars is determined, first, by the distance between wheel hubs, which will vary on different cars, depending upon the track gage and the shape of the wheel at the hub; second, by the location of the gear on the axle, and third, by the over-all length of the motor at the axle bearings, which differs with the various sizes of motors. It can readily be seen that to meet these conditions will require a wide range of collars of varying lengths. Further, these different lengths of collars must be arranged with a number of bores made to fit the different sizes of axles found on the great variety of car equipments.

In the earlier equipments, non-adjustable collars that would just fill up the space on the locomotive axle were used. This type of collar was very satisfactory when the equipment was first put in service. However, as no provision was made to take up the wear on the axle bearing flange, the motor soon developed considerable end play on the axle, resulting in rapid wear of parts and a tendency for the gear to cut through the side of the gear case. With this type of collar the end play could be taken up at least temporarily by releasing the clamping bolts and moving the collar over against the axle bearing and then tightening the bolts securely.



Courtesy of Westinghouse Electric & Mfg. Co.

SECTION THROUGH ADJUSTABLE AXLE COLLAR

A, diameter of axle bearing flange; *B*, diameter of axle; *C*, space to be filled.

To provide a more positive and permanent means of taking up the end play due to wear, an adjustable collar was developed which was provided with an adjusting bolt, the head of which was backed up against the wheel hub. This bolt can be backed off the required distance to make the collar long enough to take up the maximum allowable axle bearing flange wear, after which the worn bearings should be replaced by new ones. This feature has been found to be of such value in keeping the motor properly located on the axle at all times that it is now being almost universally used in connection with all railway equipment.

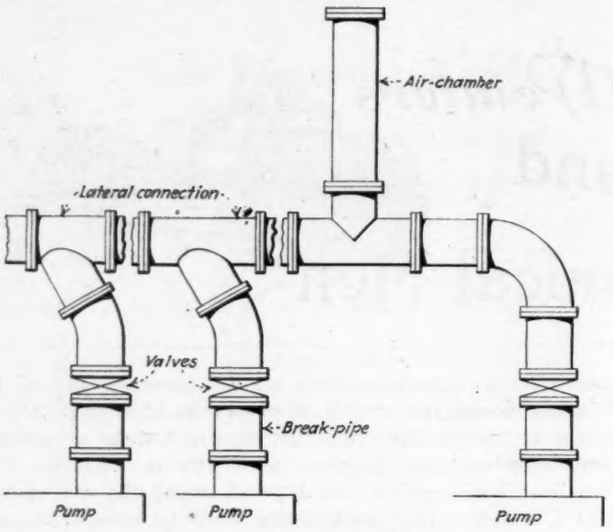
The earlier axle collars were made of cast iron and fitted with a single adjusting bolt. They were made very heavy, being designed with a large factor of safety. During the campaign for light-weight equipments, the pressed steel axle collar was developed with double adjusting rods, and having the rubbing face reinforced with hard fibre rings to reduce the axle bearing flange wear. The experience of a number of operators indicated that the pressed steel collar was too light for this service and it was replaced by a heavier collar as shown in the figure herewith.

Use of Air Dome Prevents Breaking of Column Line Connection Pieces

BREAKS occasionally occur in the column lines of pumps in coal mines as in other industries. Under some circumstances these breaks have serious consequences, especially when the mine workings are making much water and the pumps are just about able to handle the large volumes which are continually running into the sumps. When the mine water is pumped to the breaker or washery for coal preparation, shutdowns to the pumps become more serious because the outside operations must also stop, thus throwing hundreds of men idle waiting for water. Even short delays are serious because the payroll does not stop when the pumps stop.

The illustration herewith shows the arrangement of three reciprocating pumps at the Cranberry Creek Coal Co. at Hazleton, Pa., which were used for the double purpose of dewatering the mine and furnishing a supply for outside consumption.

Occasionally some difficulty would arise with a pump



AIR DOME ON COLUMN LINE PREVENTS BREAKAGE OF CONNECTION PIECES

The air dome acts as a cushion to the surges in the line and saves the column line and connection pieces from breaking under the strain.

valve and a pump would miss a stroke and cause a surge or hammer in the column line. When this happened the surge sometimes was severe enough to break one of the laterals, resulting in the necessity of shutting down all the pumps, with delays to the outside force of men working on the preparation of coal.

To avoid the necessity of shutting down all the pumps when these shocks occurred, break pipes—pipe sections much thinner than the metal in the laterals—were placed between the valves on the discharge line from the pump and the pump itself, the idea being to have the break pipes break under the shock rather than the laterals. The break pipes were of metal 1/4 in. thick while the laterals were of metal 1/2 in. thick. Nevertheless, the laterals continued to break whenever a heavy surge occurred.

The difficulties were effectively overcome when the master mechanic, T. D. Stockdale, placed in the column line a T-connection to which was jointed a 10-ft. section of pipe the end of which was covered with a blank. This attachment is essentially a large air dome which is filled with compressed air from a compressor in the pumping station and whenever a surge occurs the air in the dome acts as a cushion for the water.

Neither laterals nor break pipes break with this large dome on the line and whenever the pump runner hears the least sound of any water-hammer he starts up the compressor and keeps the dome properly filled with air.

Motor Sizes on Electric Mine Locomotives

PLEASE explain in the columns of *Coal Age* how the horsepower of mine locomotives is determined. I also would like to know what would be the weight of a locomotive capable of developing a drawbar pull of 2,000 lb. What would the horsepower rating of each motor of such a locomotive be? J. H. BLAIR,

Moundsville, W. Va.

On page 973 of the June 14 issue of *Coal Age* is an article entitled, "How Big a Load Can a Locomotive Haul." In the table on the same page it will be noticed that a locomotive capable of developing 2,000 lb. drawbar pull on the level would weigh 4 tons. The haulage capacity on the level would be 70 tons. On different grades the haulage capacity and drawbar pull of the locomotive decrease with increase in grade, as shown in this same table.

This table has been constructed for locomotives equipped with wheels having steel treads, for locomotives having cast iron wheels the values in the table must be reduced to 80 per cent of those shown in the table.

The standardization rules require that locomotive ratings shall be based on the running drawbar pull in pounds on the level, and speed in miles per hour that the motors will develop as determined at rated voltage.

From the above it is clear that the motor rating is a function of the speed of the locomotive when developing its rated drawbar pull on a straight, level track with dry rails. Therefore to determine the horsepower of the motors one must have data with reference to the speed.

However, for two-motor trolley locomotives running about 7 miles per hour at full rated drawbar pull the manufacturers are equipping the locomotives with motors which are rated so as to total about 8 to 10 hp. per ton of locomotive weight. From this it is apparent that a 4-ton 2-motor trolley locomotive would be equipped with motors capable of developing about 16 to 20 hp. each.

Locating Electric Switches in the Mines by White Markers

IN WORKING for a large anthracite company and by visiting the various collieries of the company I frequently observe different methods of doing the same thing. Some ingenious mind often invents a contrivance or hits upon an idea which accomplishes a given result much more efficiently or safely than it was ever done before. One of these ideas I am now passing on to the readers of *Coal Age*.

At one of our mines we have all our electric power switches indicated by two fairly long arrows, one parallel to the trolley wire itself, the other at right angles to the wire. The arrows are painted white so that they will stand out conspicuously against the black background. In case of an emergency, anyone, even a person unfamiliar with the location of the trolley switches, can readily see these markers and throw off the power. I believe that this simple idea will save the life of many a man and many a mine mule.

This is in line with the general safety measures which require that caution notices and warning signs shall be posted at points where such warnings and instructions will be most effective in reducing the hazard of danger from electric power lines.

We also have posted in every surface and underground station, and at the entrance to each mine, instructions for the restoration of persons suffering from an electric shock.

All employees who work with or on electrical apparatus should know how to carry out these instructions without delay.

By carrying on a campaign of Safety First we hope to reduce materially the number of accidents resulting from persons coming in contact with electric conductors switching equipment.

ANTHRACITE STUDENT.

Problems of Operating Men

Edited by James T. Beard

Safeguarding Slope Mine from Seasonal Floods

Conditions Regarding Quicksand Warn of Danger—Two Plans Suggested—Another Mine Inundated for Lack of Needed Precautions

CONSIDERING the conditions described by Joseph Magdalena, *Coal Age*, Aug. 23, p. 291, regarding the seasonal flooding of his slope mine, I am impressed with the thought that he failed to recognize the imminent danger that surrounded the undertaking by reason of the presence of the bed of quicksand, which he says was 30 ft. in thickness.

The correspondent states that the slope was started in this bed of quicksand. His experience in that event, should have acquainted him with the conditions that prevailed and that should have been sufficient warning that trouble would be encountered later in the development of the mine. In view of the conditions described, it seems to me that the most practical method of lining this slope, to prevent the inflow of water and insure the best results, has not been adopted.

Barrel Arch as Slope Lining

It appears that, inasmuch as the quicksand was known to exist, a more efficient means should have been employed at the start. From my own experience, I would say the condition should have called for a barrel arch being constructed and carried the entire length of the slope, from the entrance or mouth to where the road reached the coal. The same construction should have been extended well into the coal, to make a good job.

It is my opinion that a 9-in. brick arch, or one of reinforced concrete, if properly constructed so that the lining completely covered the roof, sides and floor in the shape of a barrel, would have eliminated all future fear of trouble by reason of water finding its way into the mine.

Had such a form of construction been used I believe there would be no necessity now of considering the building of a steel door at the foot of the slope, in order to protect the mine from inundation during the wet season or in the event of a cloudburst.

Objections to Door at Foot of Slope

The objection to building a door at the foot of the slope to keep the water out of the mine is twofold. In the first place, assume that such a door has been built and is closed in anticipation of a flood and that the slope is filled with water. In that case, the mine must be shut down for days or weeks, before the water can be baled out and the door opened for the resumption of work.

Again, a sudden cloudburst, or an increased inflow of water that is unexpected, may occur at a time when no one is around that can close the door and the mine would then be flooded the same as if the door had not been provided.

In addition to the plan that I have already suggested, let me say that it might be good policy, in the present emergency, to sink a shaft at some point higher on the surface, while continuing the uninterrupted development of the mine through the slope opening. When the shaft has been completed and operations transferred to that location, a strong bulkhead can then be built at the foot of the slope, which would completely shut out the water coming from that source.

Failure to Provide Protection Causes Loss

The hazards that attend all such situations are too great to take any chances with human life and the destruction of property, to say nothing of the loss of valuable time and the needless expenditure of money. Failure to provide the necessary security where conditions prevail such as have been described, is nothing short of furnishing a mantrap that may some day prove fatal. Financially it is a losing proposition.

Before closing, permit me to narrate briefly what occurred at one mine of which I had charge. The company operated two mines located on opposite sides of the narrow-gage railroad running from Castle Shannon to Pittsburgh. I had charge of No. 2 mine. The slope dipped 3 per cent to reach the coal, while the mouth of the slope was not more than 30 ft. from the creek.

Having often pictured to myself the possible situation of my men at work in the mine at a time when the creek might suddenly overflow, I had a heavy folding door built just inside of the slope mouth. The work of building the door was nearly finished when the big boss happened around and wanted to know my idea in building such a strong structure.

Appeal Unheeded Brings Disaster

The need did not appeal to him and my suggestion that he do the same at No. 1 mine brought the reply, "Not on your tintype." The sequel can be told in a few words. A week or so later I was called from my bed at 2 o'clock in the morning and told that the creek was rising rapidly. Water was even then trickling down the slope.

It did not take me long to reach the mine and close the emergency door. Having done this, I started to get the men out through the fandrift. There were twenty men at work in the mine at the time. Much to my surprise on reaching the surface, I found the water halfway up on the door that I had closed.

However, my work was ineffectual because of the superintendent's failure to protect the mouth of No. 1 mine in like manner. The water flowed into that opening and flooded both mines through the connecting entries driven between them.

Gans, Pa. R. W. Lightburn.

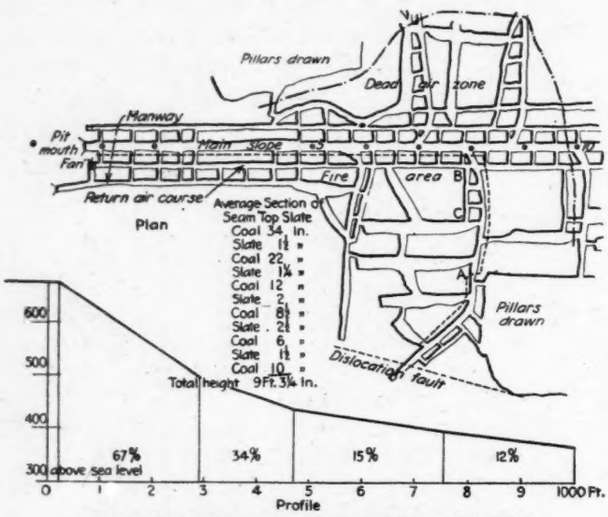
Fighting Mine Fires with Carbon Dioxide

Attempt to extinguish fire with water under high pressure fails—Mine then sealed and carbon dioxide forced into the workings proves successful.

READING the interesting article relating to the use of carbon dioxide in fighting mine fires, *Coal Age*, July 26, p. 132, calls to mind an instance where this gas was used to extinguish a dangerous fire in one of the mines of this district. The record file of this fire is missing and cannot be located; but I remember how the work was successfully performed and the fire finally extinguished. The following brief account will probably be of interest.

The fire was discovered on the morning of Feb. 13, 1905, about 7 o'clock. On being notified of the fact, I hurried to the mine and found it burning briskly at three points marked A, B, C, in the accompanying figure.

No time had been lost in taking steps to get water to the fire. A stream under high pressure was used in the



PLAN OF MINE, SHOWING FIRE AREA, ETC.

attempt to check the blaze in the air-course, at B; but as the supply of water was quickly exhausted, efforts in that direction had to be abandoned. Owing to the pitch of the seam, which is shown by the profile in the lower portion of the figure, the fire was spreading rapidly.

Flames Reach Surface, Shooting High in Air

It was soon evident that more drastic efforts must be made to quench the flame or the mine would be lost. Work was then started in an effort to seal off the entire area; but this also proved ineffectual and, in fifteen hours after the fire was first discovered, the flames had reached the surface, at the mouth of the manway and the air shaft, shooting upward from 20 to 30 ft. in height and destroying the fan in a brief period of time.

The mouth of the main slope was now tightly sealed; but, by making certain changes, it was possible to circulate sufficient air to continue the work of building solid brick stoppings outside of the wood brattices separating the other manway from the main slope.

When the "fire area," marked by a dotted line in the figure, had been thoroughly sealed off, in this manner, the work was commenced of building wood brattices in all entries in that portion of the mine from which the circulation had been cut off and which is marked as the "dead-air zone" in the figure.

The work of sealing off the fire was completed about Feb. 27, or fourteen days after its first discovery. In the meantime, preparations had been going on to enable the manufacture of carbon dioxide. For that purpose two old boiler shells, 42 in. by 28 ft., had been secured and erected near the mouth of the slope. These were connected with a 10-in. pipe line passing through the seals. Also, a tramtrack had been built leading to an unloading platform at the railroad siding.

Continuous Supply of Carbon Dioxide

The purpose of these arrangements was to furnish a continuous supply of crushed limestone and sulphuric acid to be used for the production of carbon dioxide in the boiler shells previously mentioned. These shells or tanks were to be used alternately so that the operation would be continuous. While the gas was being generated in one tank, the other was being cleaned out and a fresh charge of limestone introduced in readiness for the acid, which was supplied to the tank when the other became exhausted.

In order to ascertain the progress of the work, an 8-in. pipe had been placed in the seal, at the air shaft, and pyrometric observations and samples of gas for analyses were taken daily. This was continued until the samples contained 20 per cent of carbon dioxide.

Volume of Carbon Dioxide Produced

Estimating on a production of 3.4 cu.ft. of gas, per pound of limestone consumed, the engineers figured that approximately 200,000 cu.ft. of the gas had been forced into the mine. After careful consideration, about three months later, it was decided to reopen the mine. Every accessible portion of the workings was then examined and the fire found to be completely extinguished.

The work of recovering the mine was then started and operations were again resumed and continued, until 1919 when the place was finally abandoned. It should be stated, however, that the coal in the fire area proved defective and the brick stoppings built to shut off that section of the mine were never broken or disturbed.

Birmingham, Ala. ROBERT HAMILTON.

Drawing Mine Timbers

Blasting destroys timber and wastes dynamite—Practical method of knocking out timbers when chain post puller is not available.

LOOKING over the issue of *Coal Age* for July 5, my eye rested on the inquiry of a Tennessee mine foreman, page 20, who asked for the most practical way of withdrawing mine timbers. He explains that he has used different methods of pulling timber but seems to lay particular emphasis on the practice of blasting out timbers that cannot be removed with safety by other means.

He states that a small stick of dynamite is inserted in a hole drilled in the post, about 10 in. below the roof. While acknowledging that the practice destroys the timber and makes it unfit for future use, he says that they have had comparatively few accidents, though the method has not been altogether satisfactory.

Being a neighbor of mine in Tennessee, I feel interested in saying a word on the subject. As a practical mine foreman, my friend will allow that the first consideration is the safety of the men employed in the work. No doubt he chooses the most practical and experienced men for the purpose. Allowing all this,

let me suggest that there will be greater safety and economy in putting his dynamite aside for other use thereby saving both timber and explosive.

While I fully agree with the editor who advocates the use of the chain post puller when drawing timbers, I want to take this opportunity of mentioning another method that we have found most practicable and that can be used with safety when the chain puller is not available, which is frequently the case. In this method, nothing is required but a strong rope and a good 8-ft. timber to serve as a battering ram.

The plan is a simple one. The two ends of the rope are securely tied to convenient posts, allowing a certain sag in the rope. The 8-ft. timber which is to be used as a ram, is then hung from the center of the rope in such a position that it can be swung to and fro.

After making sure that he stands in a safe place, the man operating the ram swings it backward and forward, striking the timber he wishes to knock out with a sharp blow. By the use of this method, I have knocked out posts and double timbers as well, with the greatest degree of safety. Where there is danger of the post being covered by the fall of roof and lost, it may be possible to attach a rope to the post, which can then generally be drawn clear of the fall.

Let me add in closing that the first thing to be considered, in the operation of a mine, is the safety of the men employed in the work. Next to this comes the cost of getting out the coal. Every reasonable effort must be made to reduce the cost-sheet if the mine is to be operated successfully and on a paying basis.

Wilder, Tenn. OSCAR H. JONES.

Inquiries Of General Interest

Leaky Joints in Air and Water Pipe Lines

Trouble from Leaky Joints Quickly Overcome by New Method—Saving Effected in Cost of Maintenance — Advantages of System

AT OUR mines, which are equipped with compressed air for operating the drills, we have experienced a considerable loss of power from leaky joints in the pipe lines, which are carried a distance of 6,000 ft. before reaching the point where the power is distributed to different portions of the working face.

For a time, the matter was not given the attention that it should have received, owing to the fact that the leakage of the air from the pipe line greatly improved the ventilation on the main road, which was the return airway for the mine and badly in need of better ventilation.

However, with the development of the mine and the installation of more drills, the demand for power increased and investigation showed the need of repairing the leaky joints, putting in new gaskets and lining up the pipe by supporting it where it had sagged. This work has made a considerable item in our cost-sheet and opened our eyes to the need of using more effective measures of maintaining airtight joints in the pipe lines. Somewhere we have seen or heard of a new method of making these joints airtight in long pipe lines. Any information that *Coal Age* or its readers can give that will assist us in overcoming our present difficulties will be greatly appreciated.

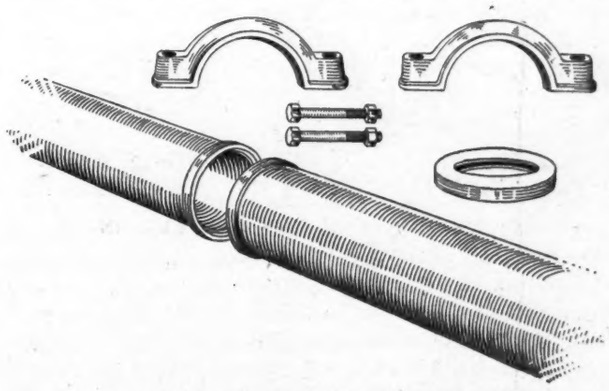
———, Ill. MANAGER.

Many readers will recognize that this correspondent has voiced a common difficulty encountered in attempting to transmit power by compressed air through a long pipe line. Unless given careful and constant attention, leaky joints are bound to develop and a corresponding loss of power is invariably the result.

Speaking of leaky joints, however, the trouble is not confined to airpipe lines. The same difficulty is experienced in maintaining tight joints, in an extensive spraying system, where the pipes are extended long distances underground. The trouble is much increased in a long siphoning system, where leaky joints greatly impair the efficiency of the siphon, which eventually will run dry, because of the leakage of air into the pipe line. Leaky joints also give much trouble in column pipes when supported in deep shafts where the pipe is subject to vibration due to hoisting and other severe conditions.

A new method of securing practically airtight and watertight joints in pipe lines has been extensively introduced in English collieries and is claimed to give good satisfaction. In one instance that has come to our knowledge, from six to eight men were kept constantly employed repairing leaky joints, in a large mine equipped with compressed air where ten miles of pipe had been installed, the pipes ranging from 2 in. to 10 in. in diameter. The application of the so-called "Victaulic" system to these pipes made it difficult to find a single leaky joint.

The device is exceedingly simple. As shown in the accompanying figure, it consists of two metal housings



DETAILS OF WATER- AND AIR-TIGHT JOINT VICTAULIC SYSTEM

that can be bolted together around the joint and are made to inclose a leakproof ring which is flexible. The entire makeup consists of but five parts. The flexible ring seals the joint in the same manner as a U washer.

As the pipes do not butt together and as moreover there is clearance on each side of the shoulder the pipe line has ample room to expand. In consequence where these joints are used no other provision need be made for expansion. The flexibility of the joint is an exceedingly interesting feature in mining work, where rigidity in a pipe system is so frequently objectionable in striving

to make an installation conform to the irregularities of the mine passageways.

The fitting of a single joint, in the Victaulic system requires no skilled labor and is accomplished in about two minutes. The joint is sealed automatically and requires no further adjustment. Ordinarily, the metal housings are made of semi-steel (25 per cent steel) and are suitable for a working pressure of 300 lb. per sq.in., in a water pipe line, or 100 lb. per sq.in., in an air pipe line. With joints of forged steel, the working pressure can be increased to 600 lb. per sq.in. The seal of the flexible rim is more effective, the higher the pressure.

This system of securing and maintaining leaktight joints, in water and air pipe lines, is the result of special investigation and experiment by the Victaulic Co., Ltd., London, England. It should have a wide field of application in mines and quarries in this country.

Examination Questions Answered

Anthracite Foremen's Examination, Districts 8-14, Incl., 1923

(Selected Questions)

QUESTION—*What are the principal causes of fires in coal mines and what precautions should be taken to guard against them?*

ANSWER—Among the chief causes of mine fires may be mentioned: The careless use of open lights, in presence of gas or in proximity to combustible matter; in the handling of powder; in the preparation of shots in blasting; or in the handling of hay for the mules; also, the care of oily waste used about the pumps and other mining machinery. A mine fire may result from the ignition of gas by a defective safety lamp or by the improper use of such a lamp; or the ignition of gas or dust may be caused by the flame of a blownout shot. A feeder of gas ignited by a blast may be left burning in the coal and start a fire that is difficult to extinguish. Fire also frequently results from the spontaneous combustion of fine coal and dust stored in the gob, or the same may occur in a pile of oily waste carelessly thrown aside. Fires are also caused by the imperfect installation of electric wires, the sparking of motors in the presence of gas or dust and the blowing out of a fuse or the short-circuiting of live wires.

To avoid these results and dangers, strict rules must be made and enforced in regard to the handling of all explosive and combustible material, the use of open lights and other conditions liable to cause a fire. All safety lamps used in the mine should be carefully examined at the close of each shift and the same cleaned, filled and assembled for use again, by a competent person in charge of the lamphouse. All installations of electric wires and machinery of that type should be made by a competent electrician familiar with mining conditions.

QUESTION—*A sinking bucket is 4 ft. 6 in. deep, 3 ft. 3 in. in diameter at the top and 2 ft. 9 in. at the bottom; what is the cubical contents of the bucket and what weight of water will it hold?*

ANSWER—The shape of the bucket represents the frustum of a cone whose two diameters are $D = 3.25$ ft.; and $d = 2.75$ ft., respectively. The height of the frustum, or depth of the bucket, is $h = 4.5$ ft. The volume of the frustum of a cone is calculated by the formula

$$0.7854\,h\,\frac{D^3 - d^3}{3(D - d)}$$

In substituting the given values in this formula, we have $3.25^3 = 34.328$; and $2.75^3 = 20.797$, making the difference of the cubes 13.53, while the difference of the two diameters is $3.25 - 2.75 = 0.5$ ft. and giving for the cubic contents of this bucket,

$$\frac{0.7854 \times 4.5 \times 13.53}{3 \times 0.5} = 31.88 \text{ cu.ft.}$$

Calling the weight of a cubic foot of water 62.5 lb., the weight of water in this bucket when full would be $62.5 \times 31.88 = 1{,}992.5$ lb., or practically one ton.

QUESTION—*What first-aid service would you render a person suffering from: (a) Compound fracture of limb; (b) electric shock; (c) powder burns; (d) fractured rib?*

ANSWER—(a) The first-aider, on finding a compound fracture of a limb, must send at once for a physician, at the same time adjusting the limb in the easiest possible position, with great care, to avoid the splintered bone from lacerating the flesh. In this position he must bind it carefully in a manner to prevent any undue movement causing further injury. If practicable, the injured person should be removed on a stretcher to where he will get better air and revived with smelling salts or other means, to prevent collapse.

(b) If the man is still in contact with a live wire, promptly shut off the current if a near-by switch is available; or short-circuit it by any means at hand; or cut the wire by a single blow of an ax; or drag the person from the wire by catching hold of his dry garments, or by the use of a pole, or otherwise. Always avoid standing on wet ground or handling wet garments when striving to remove the man from contact with the wire. When this has been done, apply artificial respiration after the usual manner.

(c) Everything must be done to exclude the air from the parts burned, by applying a thin paste of flour, starch or baking soda; or by the use of vaseline, olive oil, cream or fresh lard. Then cover the parts with a light cloth and remove the person to where he can be more comfortably treated.

(d) The breaking of a rib causes a sharp pain, by reason of the action of breathing creating a movement in the chest whereby the broken bones are made to pierce the flesh. In order to reduce this trouble to a minimum, a large towel, a garment, or any suitable bandage, must be wrapped around the body and over the chest in a manner that will afford some support to the broken parts of the rib and prevent their movement as far as that is possible. The injured person must be moved very carefully and given every care and attention while awaiting the arrival of the doctor.

QUESTION—*If you were sinking a double-track slope, on a dip of 40 deg., how would you secure the track?*

ANSWER—The track must be held in position and prevented from slipping down the slope by spiking it to crossbars hitched into the rib on either side of the road, at intervals of ten or twelve feet. At times, use is made of short struts or braces made to bear against the crossbars and set in footholes cut in the rib, the struts making an angle of about 45 deg.

International First-Aid and Rescue Meet More Complex Than College Track Meet

Running off an International First-Aid and Mine-Rescue Meet such as was held in Salt Lake City, Utah, Aug. 27-29, is no easy task for either the Bureau of Mines officials who are in charge of the meet annually, or for the 54 first-aid and 21 mine-rescue teams from all over the country who participated last month. It is a far more complicated and serious business than the great college track meets which drag throngs to the country's athletic fields. In the first place more contestants are entered than usually take part

FIRST MEXICAN TEAM TO TAKE PART IN AN INTERNATIONAL MEET

Third prize in the mine-rescue contest was taken by the team representing Real Del Monte y Pachuca Co., of Pachuca, Mex., captained by Manuel Ramirez.

in any athletic meet short of the Olympic games—about 450 were at Salt Lake City—and each event is judged on scores of points from start to finish instead of merely on the ultimate outcome. A report of the meet appeared in last week's *Coal Age*.

The first-aid contest, which kept judges, the 54 teams and a good many spectators busy in Bonneville Pavilion for two days and which was won by the Anaconda Copper Co.'s team, began with an inspection of equipment with which mine teams are trained to treat sufferers of any mine accident. Each team was composed of six men, including a captain.

Each team as it performed a problem was rated by a subcommittee of three judges. Subcommittees of judges worked under a committee of three chief judges, one of whom acted as chairman. Subcommittees of judges performed their work progressively. Each judge kept and signed his own score card.

CUP PRESENTED BY THE BERTHA-CONSUMERS CO. TO WINNER OF FIRST-AID CONTEST

Each of the several judging subcommittees consisted of two doctors skilled in first-aid training and conversant with the Bureau of Mines first-aid standards, and one layman familiar with underground mining methods and trained in the Bureau of Mines first-aid standards. Each team performed the same three problems.

HIGHEST HONORS OF THE INTERNATIONAL FIRST-AID AND MINE-RESCUE MEET WENT TO THESE ILLINOIS MEN

They won not only first prize in mine-rescue work but also the combination first prize with honors for rolling up a rating of 94 in both first aid and mine rescue. They are, left to right, top row: Captain Mungo Marshall, James Weir, John Young, William Larson and Mungo Brown; front row, J. B. Kell and Robert Tait. These men represented the Benton district of the Illinois coal field.

Such problems as these were worked on the floor of the pavilion over one of the team members, by each team:

(1) Treat following injuries: Simple fracture of lower jaw; compound fracture of middle of right thigh, bleeding freely bright red blood from wound over fracture on the front and to the inner side of the thigh; patient conscious, in state of shock.

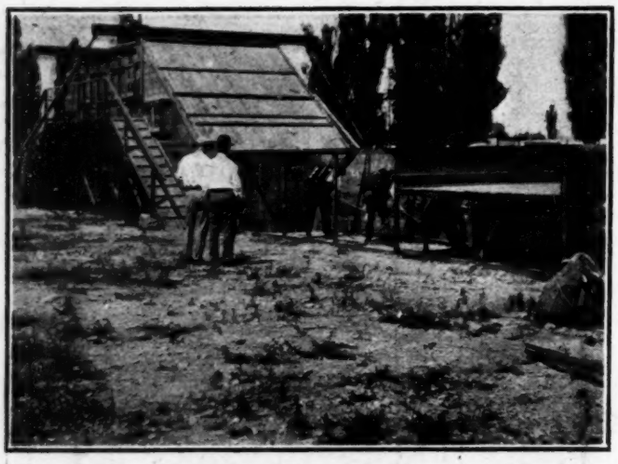
(2) Treat following injuries: Severe injury to left eyeball; broken kneecap of right leg; dislocated right shoulder; little finger torn off left hand, bleeding profusely.

(3) Man is found, apparently not breathing, on his back with shoulder and upper part of both arms in contact with a live electric wire. Demonstrate three methods of rescue before treatment. Treat. No burns to treat. Demonstrate artificial respiration for two minutes. Treat for shock.

There were many pitfalls awaiting each mine-rescue team

SECOND HIGHEST HONORS OF THE INTERNATIONAL FIRST AID AND MINE RESCUE MEET WAS WON BY THIS MONTANA COPPER MINING TEAM

First prize in first-aid work with a score of 97.91⅔ and a prize for being the best first-aid team from the Rocky Mountain states were the honors taken by this team representing the Anaconda Copper Mining Co. of Great Falls, Mont. The men are, left to right, top row: Captain L. J. Deranleau, Viggo Paulsen, Gordon Gillis, George Roberts and Dr. C. C. Gerrard; front row, Joseph Marcure and Edward Egan.



MINE-RESCUE TEAM ENTERING SMOKE AND GAS GALLERY AS IT BEGAN WORKING OUT ITS PROBLEM IN MINE RESCUE

as it took the field. As each team went through its preliminary examination by the judges there were discounts totaling 100 points which could be assessed against the entrants. Failure to name or demonstrate tests for tightness and proper working condition of apparatus, improper assembly of apparatus, failure properly to explain the circulation of air through the apparatus, failure to discuss satisfactorily several main questions about crew performance and failure to explain properly the purpose of various parts of the apparatus were costly.

The whole meet was under the direction of D. J. Parker, for the Bureau of Mines, Mr. Parker is chief engineer of the Bureau's mine-safety service at Pittsburgh, Pa., with these Bureau men serving with him on the Bureau of Mines committee: J. J. Bourquin, E. H. Denny, Dr. A. L. Murray, Thomas Varley, B. O. Pickard, C. A. Herbert, W. D. Ryan, B. W. Dyer, D. Harrington and E. B. Swanson, W. Mont Ferry was chairman of the executive committee for the meet and Dr. A. L. Murray was secretary. Dr. G. H. Richardson of the American Red Cross, San Francisco, Cal., and H. M. Wolfin, superintendent of safety for the California State Industrial Commission, were chief judges of the first-aid contest. W. G. Duncan was chief mine-rescue judge.

Slack Time Raises Mining Cost

Bituminous Mines Average 220 Days per Year—Steadiness of Operation and Car Supply Chief Price-Determining Factors

The effect of slack times on the cost of running bituminous-coal mines is the subject of a report issued Sept. 12, 1923, by the U. S. Coal Commission. The report is in two parts; that given herewith in full is the conclusion as signed by the commissioners; the appendix is a staff report that will be published in full in *Coal Age* at a later date.

The summary follows:

TO THE PRESIDENT AND THE CONGRESS OF THE UNITED STATES:

As one of the results of its engineering study of the "cost of production" of coal, the U. S. Coal Commission submits its conclusions on the Effect of Irregular Operation on the Unit Cost of Production of Bituminous Coal. A more general discussion of irregular production in its broader aspects will follow in another chapter of this report.

The cost of producing a ton of coal, other things being equal, varies with the steadiness at which the mine is operated. If the mine runs every working day the cost is the lowest; each idle day adds to the cost of producing coal on the days worked. This is so because a part of the costs go on whether the mine operates or stands idle. Since irregular operation of bituminous coal mines is the rule rather than the exception, it is important to determine the cost of idle days.

It is the general practice to maintain soft-coal mines in condition as respects equipment, development and labor to produce coal on short notice. Mines are seldom completely closed for short periods and the labor force dismissed. Even in periods when the demand for coal is slack and orders few, it is customary for the management to maintain a working force, in part to keep the mine in condition to produce and in part because some of the force are paid by the month. Still other expenses, as will be detailed later, are continuous whether the mine is producing coal or not. Therefore, the sum total of the continuing expenses for a period of a year, for instance, must be prorated over the number of tons produced in that year. Obviously, if the mine produces twice as much coal in one year as in another, each ton of coal produced in the slack year must carry twice as large a proportion of the continuing expenses as are assessed against each ton produced in the year of high production.

Taking the month of 25 working days as full-time operation, it is found that when the mine works 16 days, 4 days per week, the cost per ton is increased 8 or 9 per cent over full-time operation; when working time is 12 days per month or 3 days per week, that is, half time, the unit cost is 21 to 25 per cent over full time or minimum cost; and when but 8 days per month or 2 days per week, is worked, costs increase 48 per cent. Four days per month, or 1 day per week, of operation raises costs 104 to 120 per cent over the minimum. If but one day is worked per month, the increase is from 474 to 549 per cent over full-time operating costs. These figures are based on the detailed reports of costs of production made to the Federal Trade Commission for 1918 and to the Coal Commission for 1921.

The following table gives the increase in cost of production for each day the mine is idle, expressed as percentages over the cost when the mine is worked 25 days per month:

Days Worked	Percentage of Full Time	Percentage Increase in Cost Production 1918 266 Mines	1918 117 Mines	1921 119 Mines
25	100	0	0	0
24	96	1	1	1
23	92	2	2	2
22	88	3	3	3
21	84	4	4	4
20	80	5	5	5
19	76	7	8	6
18	72	8	9	8
17	68	10	10	9
16	64	12	12	11
15	60	14	15	13
14	56	17	18	16
13	52	19	21	18
12	48	23	25	21
11	44	27	29	25
10	40	31	34	30
9	36	37	40	35
8	32	45	48	42
7	28	54	58	51
6	24	67	72	63
5	20	84	90	79
4	16	111	120	104
3	12	155	167	145
2	8	243	263	227
1	4	507	549	474

The advantage and economy of full-time operation are clearly indicated. As between two similar mines, each having a cost of production of, say, $2.50 per ton if worked 25 days per month, the mine that enjoys the best working time under conditions of car shortage and a strong market for coal, will make the larger profits because of lower costs; or under conditions of poor market one may undersell the other and realize a profit because with more days worked the cost will be lower. A mine having assigned cars or served by private cars in 1920, when car supply was relatively poor but prices uniformly high, worked every day with an average cost of, say, $2.50 per ton. Another mine depending on its share of system cars may have worked but three days per week, in which event the cost per ton would have been 25 per cent higher, or $3.12 per ton. If car shortage held operation down to two days per week, the costs would have risen 48 per cent to $3.70 per ton.

It is during periods of car shortage, when demand for coal is at its best and prices high, that the effect of broken time on cost is most evident. In such periods the operator holds his full complement of labor and maintains his prop-

erty in condition for maximum output, in fact endeavors to increase his daily capacity because he thereby becomes entitled to a larger share of the available railroad cars. Under such conditions there is no possibility of economizing on costs as by lay-offs from payroll on idle days. The full effect of forced idleness is felt on costs under such conditions.

However, when demand is slack, railroad cars plentiful but orders for coal scarce, prices are low and labor is competing for jobs. Advantage can then be taken to reduce costs by curtailing indirect labor costs and in other ways. The cost of idle time can be and is thus somewhat reduced under slack market conditions. The comparative costs in 1918 of 27 companies operating 117 mines with the costs in 1921 of 25 of the same companies then with 119 mines gives the difference of idle-day costs due to car shortage as compared with idle-day costs due to no market. Taking again a base cost of $2.50 per ton for full-time (25 days) operation it is found that when working 20 days (5 days per week) there was no difference; when working 16 days (4 days per week) the difference was negligible, 2½c. a ton; when working 12 days (3 days per week) the difference was 10c. per ton; and when working 8 days (2 days per week) the difference was 15c. per ton. One day per week brought the difference up to 40c. per ton. There is thus no notable difference in unit cost of production caused by short-time operation whether this broken time be due to lack of transportation or lack of market. The real difference enters in the reduction in the base cost, which can and quite generally is reduced in times of inactive demand.

It may be inquired in view of this factor of cost of idle time what effect on the country's coal bill the fact may have had that in the past 20 years the soft-coal mines have worked an average of but 220 days, or about 72 per cent of full time. If the price paid by the consumer were cost of production or a direct function of cost, then the answer would be that the total cost to the country was about 8 per cent more than it would have been if few mines working full time had produced this coal. However, the price in periods of dull demand is set by the mines with lowest costs, which, other things being equal, are the mines that secure enough business, largely by reason of their lower cost, to operate the nearest to full time. Then other higher cost mines work less days, take less profits, none at all, or lose money. In times of poor demand and keen competition for business the consumer quite generally get the advantage in lower production costs that attends full time operation of the mines. During prolonged periods of inactivity many mines are closed down and those that are operated on short time quite generally lose money.

In periods of active demand, increases in cost due to broken operating time caused by car shortage are absorbed by operators in the higher prices realized for their output, providing it is sold in the open market. Operators with contracts at fixed prices are affected in the opposite way. Better operating time obtained by taking on low-priced business in dull periods serves to lower costs; in active periods when car shortage prevents full-time operation, costs at these mines are adversely affected with no opportunity to make up the difference by increasing the sales price.

A more complete presentation of this study, which represents the work of C. E. Lesher and R. A. Walter, of the engineering staff of the commission, is appended, together with a diagram illustrating the effects described above. It is hardly necessary to point out that the ratio of increase in cost as days worked decreases, accurate as it may be as an average for a large number of operations studied, cannot be expected to exactly fit any one mine. However, in the appendix general principles are set forth by which the ratio of increase for a single operation may be calculated from a few observations.

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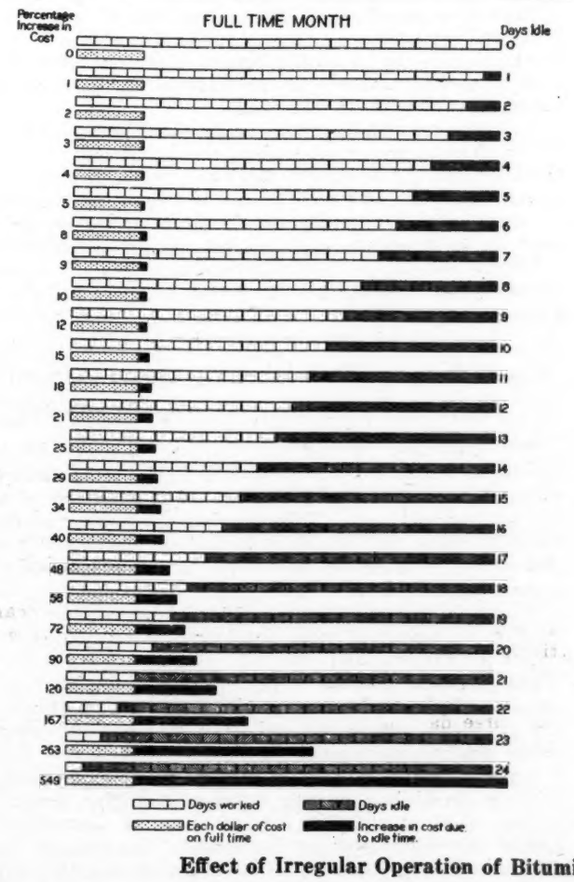

Cost of production is at the minimum when the mine is worked full time, that is 25 days per month and has no idle days. The stippled bar at the left represents a dollar of cost under such conditions.

The loss of one day's operation increases the average cost one cent on each dollar of cost, or 1 per cent; the loss of two days in the month increases the cost 2 per cent, as is indicated by the solid black additions to the stippled bar representing each dollar of cost.

Thus, if the mine loses 8 days out of 25 in the month, the average cost of production is increased 10 per cent, that is ten cents on each dollar of cost. If the mine is a "low cost operation," with a full-time cost of say $2.00 per ton, when it is idle 8 days the average cost amounts to $2.20. If a "High cost" mine, with an average of $3.50 per ton when working every day, the average cost per ton in a month when 8 days were lost would be $3.85 per ton or 10 per cent greater.

When the time lost exceeds one third of the month that is from 9 days upwards, the increase in average cost rapidly increases. If the mine is worked 12 days and loses 13 days, costs are increased 25 per cent.

If 17 days are idle, the cost is nearly 50 per cent over the minimum.

If but one day a week or four in the month is worked, the cost is more than doubled. Two days of operation per month raises the average cost per ton 263 per cent and each dollar of minimum cost becomes $3.63. If but one day is worked the cost increases by the amount of 549 per cent.

Effect of Irregular Operation of Bituminous Coal Mines on Cost of Production

Searchlight May Be Turned on Retailer Soon, Warns Byron R. Newton

That the United Mine Workers will advocate nationalization of the coal mines as soon as the report of the U. S. Coal Commission is out of the way, was asserted by Franklin Bache, of Philadelphia, mining engineer and a coal operator in Arkansas and Oklahoma, in an address at the annual convention of the New York State Coal Merchants' Association, at Sacandaga. The convention was held Sept. 10, 11 and 12. Mr. Bache told the coal merchants that for tactical purposes government control of the coal business and government ownership of the mines has not been pushed recently, but that it is the basic demand of the miners' union and that its advocacy will soon break forth again.

He assumed that the coal dealers agreed with him that the extension of the government's activities in business is highly undesirable, and told them that "if we do not speak for ourselves we will have more and more government in business." "No sane man believes for one moment that government control and government ownership will stop at the coal business," he continued.

Mr. Bache denied that coal mines are a "natural monopoly." A fair-minded and well-informed public cannot properly place the chief blame for higher prices on the operators, he declared, for since 1914 the day wage scale in bituminous mines has been advanced from less than $3 for eight hours' work to $7.50.

"With such an advance in labor, there can be no question even in the most prejudiced mind as to the responsibility for the largest part of the increase in the price of coal, and when we consider that the public only knows about the price of coal to be delivered at the point of consumption and that freight rates have about doubled, we can show that our hands are clean as regards the prices now paid for coal," he declared. "There is no combination of operators to restrict production or to maintain prices," Mr. Bache continued. "There is no monopoly in ownership, but only a monopoly of labor maintained by criminal violence."

Byron R. Newton, former Assistant Secretary of the Treasury, who addressed the convention on the first day, characterized the settlement of the authracite miners' controversy as "a patchwork which will cost the public about $35,000,000, of which Pennsylvania is the chief beneficiary." "The public will pay from 75c. to $1 more on each ton of coal," Mr. Newton said . "The cure rests with the public in urging the closest co-operation between operators and public." He said that this is a critical time in the authracite industry, as the oil, gas and electric industries are on the trail of the coal man. Saying that the mine operators occupy the front in every contest waged with the labor union, Mr. Newton declared that he was sure the public quite generally is inclined to support the operators in the splendid fight they have made, "particularly in this last campaign," and in what they tried to accomplish.

"Everything they have stood out for has been something for the protection of the public and the men," he said, "and with persistent stubborness the union leaders have opposed the operators at every step." Mr. Newton told the dealers that as the operator has had the searchlight turned on him for so long the public knows all about him, it will now be turned on the retail dealer.

Mr. Newton said the facts and ethics of the situation all point to the necessity for co-operation between producers and distributors in educating the public.

Samuel B. Crowell, president of the National Retail Coal Merchants' Association, told of the work accomplished by the officers and committees of the national organization. Service is what the retailer has to sell, Mr. Crowell continued—knowledge of when and how to get the best coal, how best to prepare the coal at the yard; how to make the best delivery; how to obtain and keep a sufficient number of satisfied help and of the proper and broad way to handle labor problems. He told the dealers they would not go wrong if they forgot what prices competitors paid for coal, and made the price for their own coal that which will enable them to give service in its fullest sense.

Charles B. Staatz, of Albany, was re-elected president of the association for the ensuing year. Other officers chosen are: Vice-presidents, C. A. L. Wood, Rochester; R. J. Wullf, Brooklyn; John Murray, Waverly; Treasurer, J. M. Gaffers, Schenectady; Secretary, F. A. Eldredge, Auburn.

Pinchot Makes Public Text of Coolidge Message on Strike Settlement

Governor Pinchot of Pennsylvania made public Sept. 13 the message of congratulation from President Coolidge upon the settlement of the anthracite controversy. The Governor also issued a statement explaining that the telegram was given out upon receipt of word from the President's secretary, C. Bascom Slemp, that Mr. Coolidge expected Mr. Pinchot to make it public.

President Coolidge's message was dated at the White House Sept. 7, the day before the anthracite operators' representatives and miners' union officials, in conference at Harrisburg, agreed finally upon the terms of settlement. The message said:

"Please accept my heartiest congratulations on the settlement of the coal controversy. It was a very difficult situation in which I invited your co-operation. Your management of it is a distinct public service. I cannot commend it too highly. Certainly there ought to be some method devised for a settlement of disputes of this kind in accordance with principles of justice and fairness to all parties concerned. The constantly recurring danger of lack of an adequate fuel supply is of itself a grave criticism of a great industry and an intolerable condition for the public to endure."

Although the message was received six days previously, Mr. Pinchot had declined to make it public until assured from the White House that there was no objection to its issuance at Harrisburg. The Governor's statement said:

"Having received word today from Mr. Slemp that the President expected me to make public his telegram of congratulations I do so with pleasure. At the same time I wish to express again my appreciation of the President's heartiest and welcome message."

Another paragraph was added by the White House Sept. 14 to the exchange of compliments between President Coolidge and Governor Pinchot over the anthracite settlement when this telegram from the Governor, responding to Mr. Coolidge's message of congratulation on the outcome of the Harrisburg conference, was given out:

"Please receive my heartiest thanks for your courteous and welcome congratulations on the settlement of the coal controversy."

Coal-Mining Men Drawn to Exposition of Iron and Steel Electrical Engineers

The exposition of the Association of Iron and Steel Electrical Engineers which will be held in the Broadway Auditorium at Buffalo, N. Y., Sept. 24 to 28, will hold much interest for coal men. This association numbers among its members many coal-mining electrical engineers and a large part of the program will be devoted to coal-mining electrical engineering problems.

Over one million dollars worth of apparatus will be on display, representing what developments by 150 manufacturers for the coal and steel industries.

The technical sessions to be held in conjunction with the exposition have all been prepared with a view to imparting the practical experiences and data obtained by engineers in the field of operation.

Items of special interest to the coal-mining engineers will be "Specifications Covering Automatic Engine Stops," "A System of Coal and Ore Bridge Traverse Control," "The Liquid Slip Regulator or Rheostat," "Economical Use of Fuel in the Steel Plants," "The Tempering of Coal," "High-Pressure Steam Boilers."

Coal Commission Submits Recommendations to Eliminate Strikes in Bituminous-Coal Mining

Report Is Neutral on Check-Off—Advises Operators to Organize and Adopt Labor Policy—Deprecates Coercive Correctives—Takes Middle Ground on District Autonomy—Opposes Nationalization and Compulsory Arbitration

The U. S. Coal Commission has issued a sequel to its report on "civil liberties," published in full in *Coal Age* last week. This report is on labor relations in the bituminous-coal industry and is understood to represent the last word of the Commission on strikes and labor questions. A detailed voluminous report, on which the following sequel is based, also has been issued. The report of the Commission, dated Sept. 14, 1923, follows:

TO THE PRESIDENT AND THE CONGRESS OF THE UNITED STATES:

The public is not satisfied with the service it receives from the coal industry. The U. S. Coal Commission finds no reason to believe that a dependable supply of coal at a reasonable price is inconsistent with reasonable conditions of life and citizenship for the miners, or with a reasonable return on judicious investments. This chapter on the Labor Relations in Bituminous-Coal Mining is presented with the hope on the part of the members of the Commission that the suggestions it contains may help to point the way to better relations and to such service to the public that resort to public ownership may be unnecessary.

SUMMARY OF RECOMMENDATIONS

(1) We recommend that each side place some check upon provocative and truculent publicity which tends to undermine good relations.

(2) We recommend that the operators and the union undertake both separately and jointly the study of means of meeting the fundamental problem of unemployment through the stabilization of the industry, as a service to their own interests and as an evidence to the public of serious intention on their part to meet their own problems in a statesmanlike way under private administration.

(3) We recommend that the Congress provide for the continuing co-operative study of and action against the problem of unemployment as one of its first responsibilities. This would involve studies and activities in the fields of labor relations, technical aspects of production, and the marketing and storage of the product.

(4) We suggest the great importance in labor relations of good operating management in the mine, so that adequate production service to the men at the face will always be afforded.

(5) We recommend the establishment in each district and nationally of joint commissions of operators and miners, with the aid of competent men, to make thorough studies of the principal jobs and of the existing rate differentials. It is important to develop an adequate basis for the needed revision of the rate structure, at present marked by many inequalities between sections, between mines, and between jobs in the same mine.

(6) We recommend continuing co-operative study of the same subject by the general government.

(7) We recommend further attention to this same subject by individual mine managements and local unions.

(8) We recommend continuous, compulsory collection and publicity of rates and rate changes in the non-union fields by the general government.

(9) We recommend the universal establishment in the non-union fields of check-weighmen selected and paid by the men as a means of insuring confidence in weights.

(10) We recommend that that form of wage payment known as "subcontracting" be discontinued. It is held by most of the coal industry and by nearly all other industries out of date and inherently subject to abuse.

(11) It is recommended that the leasing of convict labor to operators, such as is now the practice in Alabama and a few other non-union areas, be condemned as demoralizing to the industry and degrading to the convict.

(12) It is recommended that the practice of discounting "scrip" be made illegal.

(13) We recommend serious study by both sides, jointly and separately, of the problem of undue limitation of output and of the causes which lead to it.

(14) We recommend that each agreement in the union fields contain provision that disputed cases of discharge shall be settled promptly through conciliation or arbitration.

(15) We recommend to non-union operators that adequate checks, to insure against capriciousness and unreasonableness, be placed on the exercise of the right to discharge.

(16. We condemn violence, thuggery and gun work, violation of the law and disturbance of the peace, whether practiced by the union to enforce complete unionization, or by the operators to prevent it.

(17) We recommend that such destructive labor policies as the use of spies, the use of deputy sheriffs as paid company guards, house leases which prevent free access and exit, and individual contracts which are not free-will contracts, be abolished.

(18) We recommend the recognition of the right by the union to encourage non-union workers to join the union by the example of service to its members in the union field, by showing where the advances in the union field have helped the non-union workers and by peaceful and honest persuasion of every sort.

MAY PERSUADE MAINTENANCE OF NON-UNION BASIS

(19) We recommend the recognition of the similar right of the non-union operator, by good works and honest persuasion without force, to maintain a non-union status.

(20) We recognize the irritating effects of the check-off to the operator, especially in the collection of special fines and assessments. And we recognize its injurious effects upon the union in divorcing the problem of income from the winning of membership, and in the resulting lack of closeness of contact and of educational service and control by the higher officers to the lower officers, and to the rank and file members of the union. We believe that the unsettling effects of casting out this practice, however, might more than overbalance the gains. It may well be that the use of the check-off for the collection of fines and special assessments (except in the case of fines for violation of the agreement) shou'd be discontinued. But we do not feel that the check-off is vital enough ever to justify a suspension of operations, whether the union is seeking to extend its use or the operators seeking to throw it out.

(21) We recognize that the establishment of a policy of complete district autonomy in the negotiation of new agreements, as advocated by some operators, would result in great turmoil and a renewal of the fierce competition between districts that must inevitably lower standards. We suggest, however, that many operators in the outlying fields have a real grievance when they say that essential elements of their agreements are made for them in conferences in which they are not represented. We suggest that the two parties should work out a system of national negotiation with district agreements, which will avoid standard-cutting wars between districts and secure adequate flexibility to meet necessary district conditions.

(22) We recommend a continuing umpire in each district as indispensable to the growth of good relations, since

such an agency tends toward the establishment of orderly processes of law in the industry, facilitates the necessary bargaining that goes on from day to day, is an educational force for both operators and union, and is a foundation for progress upon which the industry can build with confidence.

(23) We call attention to the fact that the operators are not so effectively organized for labor relations as the miners and that, both as a defensive and as a co-operative measure, there should be effective district and national organization and a national labor policy among union operators. Such an organization should bring to the surface the large amount of sound and constructive thinking that is being done among operators concerning the labor problems in the union fields; it should strengthen and stimulate the work of the various labor commissioners. It should create the office of national labor commissioner to function as do the labor commissioners in the districts, but on national problems. In this connection attention is called to the great importance, during the process of negotiating a new agreement, of having negotiators of the right type—men who know the union and the industry, who know when to be aggressive and when not to be, masters of sound strategy and wise tactics and, finally, men whose straightforwardness the union trusts.

(24) We find that one of the most constructive steps that has been taken collectively by the bituminous operators has been the almost universal establishment of the office of "Labor Commissioner." Only the highest grade men can adequately discharge the functions and get the full possibilities out of this office.

(25) We recommend much more serious concentration upon the problems growing out of the psychology of men at work, especially noting the examples of the many companies who have established good relations.

Recommends Training in Management

(26) Specifically, we recommend more attention to the training of superintendents, foremen and assistant foremen in problems of management, especially in dealing with labor under a union agreement. These men are closest to the miners and actually handle the grievances that arise; they, therefore, in large degree determine the bases on which the more general problems of labor adjustment rest.

(27) Half information on topics of mutual concern ranks high among the factors that tend to mar relations. We therefore recommend a policy of publicity of facts—both within the individual mine and nationally—which would include accounting reports by operators as recommended in the Commission's anthracite report and similar reports concerning union finances.

(28) In accordance with best policy in the coal and in all other industries, we recommend the policy in each company of centralized responsibility for labor relations.

(29) We recommend much closer contact and greater educational service from the district and national officers of the union to the local officers and men.

(30) We believe that the union will need to depend more on *facts* and less on *force* if it is, in the future, to advance the interests of its members as successfully as it has in the past. We therefore suggest the importance within the union of continuous facilities for research which will collect and interpret facts and aid and enlighten union policy.

(31) We particularly regret that the union has given so little serious consideration to the ways of meeting *the* fundamental problem of the coal industry—the problem of irregularity of production and employment—which concerns its members more deeply than any other problem observed, and on which they keenly desire that something be done. A definite effort to devise a joint system of unemployment compensation or insurance which shall offer considerable incentive toward steadiness of operation, as well as relief during payless days, will be of vital interest to the citizens of the industry.

(32) We believe that the union is facing a critical transition period. It has gone through and won the struggle to become powerful. The challenge confronting it now is whether it can use great power in a responsible way to serve social ends.

(33) We do not advocate nationalization as a means of meeting the national strike or other parts of the problem of labor relations.

(34) We recommend against compulsory arbitration as a means of preventing a national strike, because we do not believe in discretion-made law in either the industrial or political fields, and because there is no way to enforce a compulsory award which does not involve enforced operation or enforced labor.

(35) We believe that incorporation of the union would not have the effect of binding the union to its contracts, and making it responsible, often predicted for it. Contracts can now be made if both parties wish, with effective binding power, but ordinarily neither side desires that wage contracts shall be specific enough to be legally binding through judicial enforcement. The flexibility of various state incorporation laws makes it unlikely that incorporated unions would differ practically from unincorporated. Finally the Coronado case not only decides that a union is a legal entity for the purpose of responsibility for torts but also holds that a union voting a strike renders itself responsible for acts growing out of the strike just as a corporation would be responsible for the acts of its officers and that the union funds can be reached directly through a suit for damages, just as the property of a corporation can be.

Urges Government Investigation of Basic Facts

(36) We recommend continuous investigation and publicity by the federal government of the basic facts upon which industrial relations depend. Such continuous investigation should not be principally critical, in the sense of being chiefly concerned with noting cases of bad practice, but rather with making known cases of the opposite sort. This should bring about such a continuous interchange of information as to stimulate a greater sense of public responsibility and better practices by the union and the operators.

(37) We recommend special compulsory investigation when the prospect of failure to renew an agreement is imminent, so that the public may have a chance to be heard before conflicts arise. Specifically, we recommend an inquiry under the authority of the President of the United States. To this end, it is suggested that all agreements should contain a clause that will provide for automatic renewal of all agreements except in regard to provisions concerning which either party may have given notice to the other ninety days in advance of the date of termination of the agreement. In case of failure to agree, a report, setting forth the factors at issue, should be made to the President, by each side, not later than sixty days before the expiration of the agreement. It is recommended that when such a report is made, the President immediately inquire into the factors at issue and secure a report and award thereon made on or before the date of expiration of the agreement. The award would or would not be made public as the President would deem wise in the particular circumstances. It should be the purpose of such a report to focus upon the negotiators the irresistible moral pressure implicit in their joint obligation to furnish the public with coal.

We are confident that with a continuous orderly process of investigation and report, and if advisable with the timely injection of a definite representative of the public into the situation in case of disagreement, it will become very much more difficult for either side to adhere in any captious way to a contention that will precipitate a tie-up of the industry.

In case a suspension occurs because of failure to reach an agreement before the expiration of an existing contract, there should be no question of the continuance of maintenance men at their occupations. Both in the interest of the industry and in that of the public every contract should provide for this contingency.

The best approach to a remedy for the evils of the general strike will not, in our judgment, be found in an immediate resort to drastic prohibitory measures. Whatever artificial gap may have developed between employer and employee, they must work together or there can be no peace and no real efficiency. The weight of opinion among operators and union officials alike is that they themselves desire to fix the fundamental terms upon which the industry shall

operate. The most thoughtful and best advised among them express great confidence of their ability to do this in an orderly way. From our survey of the statesmanship that exists in the industry, it is believed that the operators and the union are equal to this task, if once they recognize the finality of the public insistence on continuous operation and address themselves single-mindedly to bring that object to pass. It will be necessary, however, for them to find means of bringing their best statesmanship to the front in connection with the general negotiations. They cannot perform this indispensable public duty unless they emancipate themselves from the atmosphere of militancy that to often characterizes their proceedings.

It is believed that the combination of continuous investigation and publicity, with the possible resort to mediation at the instance of the President of the United States, may remove the necessity for more drastic emergency measures. The process here outlined should have a sobering influence that will make strongly for enforcing responsibility to the public among representatives of both the operators and the miners. Until measures for holding both sides to their responsibilities have been exhausted, it will be extremely unwise for the public to embark on coercive measures of regulation of labor relations.

While it is believed that the above suggestions will encourage mutual accommodation and agreement at the time of the renewal of negotiations and will therefore lessen the chances of national strikes or suspensions, the fundamentally constructive opportunity lies in the building up of the day-to-day relations within the agreement period. Improvement in industrial relations during the life of the agreement would very considerably lessen the probability of a national strike.

The full text on the subject of labor Relations in the Bituminous Industry is presented in another chapter which follows.

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Check-Off Evils Need Correction

Fiercely Debated Practice, Says Commission, Likely to Survive in Bituminous Field—Fears Its Elimination Might Be Unsettling

The full discussion of labor relations in the bituminous coal industry, of which the summary by the U. S. Coal Commission is published in full on the preceding pages, contains approximately 60,000 words and if printed in full would occupy 40 pages of *Coal Age*. The document containing this discussion covers every phase of labor relations in the union and non-union bituminous-coal fields.

The discussion on the check-off is published here in full because that question is one of the most important on which the Commission has passed judgment. The Commission's recommendation with respect to the check-off is No. 20 on the preceding page, and the following is the evidence on which the recommendation was based:

"One of the most fiercely debated topics brought before the Commission is the so-called 'check-off.' The issue is likely to become confused in the public mind by the acrimony of the discussion and by the too frequent use of epithet in place of argument. The 'check-off' is an arrangement under which the operator agrees to deduct from the wages of each miner, who signs a written authorization, the amounts that may be due from month to month from such miner to the union for regular dues, special assessments or fines that may be levied against him by the union. The aggregate amounts thus deducted from the individual miners are then paid over by the operator to the treasurer of the local union. The operator thus acts as the collecting agency for the union so far as those of his employees are concerned who have signed and turned over to the union a written authorization for the operator to make such deduction from the amounts due them from pay day to pay day. The practice has never existed in the anthracite field but it was one of the demands that the miners made upon the anthracite operators when the negotiations for a new agreement in 1923 began; and it was the refusal to concede this demand that caused the first rupture between the miners and the anthracite operators in July.

"The check-off is not synonymous with the closed shop. The agreement and practice could exist in a mine run as an open shop. In such a mine the dues, etc., could be deducted in the case of union members who had signed authorization while no such deductions were being made in the case of non-union miners. On the other hand a closed shop could exist by agreement but the union collect its own dues from its individual members instead of having these amounts deducted by the employer. The check-off, therefore, bears no essential or necessary relation to either the open or the closed shop.

"In support of the demand made on the anthracite operators for the check-off, the representatives of the miners cited as a precedent certain practices that have always been prevalent in the anthracite field. Practically all of the operators in that field supply their miners with the explosives, fuses, oil, caps, and other supplies used by the miner in his work. The miner is supposed to furnish these for his use in his work, and where these are furnished from the supply department of the mine they are charged to the miner and the total of his indebtedness for such supplies is deducted on each pay day from the amount due by the operator to the miner. This is a simple bookkeeping transaction.

Each day the miner's account is charged with any supplies furnished him by the company and is credited with the amounts due him for the coal mined or the work done by him. At each pay day each miner's account is balanced and he is paid the amount by which his earnings exceed his indebtedness to the company. In addition to deductions for supplies those companies that have company houses deduct the rent from the miner's earnings before paying him; similarly, the amount due for coal furnished the miner by the company is deducted. But these all represent merely a balancing of the amounts due by the miner to the company against the amounts due by the company to the miner. But in many instances other items are deducted that fall into a different category. It is not uncommon for a store at which a miner desires credit to require h'm to sign an order on the mining company directing it to deduct from his earnings each pay day the amount that may be due by him to this store for his purchases.

USES TO WHICH CHECK-OFF HAS BEEN PUT

"In past times deductions were sometimes made in this way for church dues, for liberty bond purchase by instalments, and for numerous other purposes. These practices have been lessening but some of them still prevail. There is obviously a clear distinction between a case in which an operator merely balances an account and deducts from what he owes the miner the amounts that the miner may owe him and one in which an operator undertakes the request of the miner to withhold from the balance due the miner an amount that the miner may owe a third party.

"The first case, where the operator merely balances his own books and pays the miner the difference between the debits and the credits on his account, is not at all a parallel to the operator collecting the union dues. But the principle involved when the operator accepts authorization from the miner to withhold from his pay an amount due the grocer, or the bank or the church, is precisely the same as that

involved in the request from the union to have the operator agree to withhold from the earnings of each miner who so directs the amounts that may be due by the miner to his union for dues, etc.

"There are already two instances of a check-off for the union which were imposed on the anthracite operators by the award of the Commission in 1903. Where coal is paid for by weight a regular weighman is employed by the operator. One of the demands in 1902 that was granted by the award of the Commission was that at any colliery where the coal was paid for by weight the miners should have the right to select a check weighman whose salary was to be paid by them. The award further provided that when requested by the majority of the miners the wages fixed by the miners for their check weighman was to be deducted proportionately by the operators from the earnings of the individual miners.

"The same provisions apply to the check docking boss, an official selected by the miners to represent them at the docking station and whose salary is fixed and paid by the miners but deducted by the operator from the earnings of the individual miners. A similar practice was directed by the Commission in the case of miner's laborers. In the anthracite field most miners have as an assistant a laborer who is in the employ of the miner and not of the company. He is hired by the miner, paid by the miner and disciplined or dismissed by the miner. But the award of the Commission provided that before each pay day the miner should turn in to the company a statement of the amount due by him to his laborer and that the company should withhold such amount from the earnings of the miner and pay it directly to the laborer.

"These cases are on a parity with the proposed arrangement for the check-off, since they represent the operator collecting from his employees and paying the amounts deducted from wages over to a third party. While, therefore, it is apparent that the check-off in itself is merely a business arrangement and not essentially the insidious and diabolical thing that it is sometimes held to be, it is not a practice that should be forced on an operator against his will. It is the duty of a labor union, just as it is the duty of any other association, to collect the dues and assessments from its members by its own agents and not by coercing the employer to act as its collecting agency against his will.

"In defense of its efforts to secure the check-off in the anthracite field a representative of the miners pointed out the many difficulties that the local unions found in collecting direct from the individual members and contrasted this with the saving in both expense and effort resulting from having the operator deduct the dues from the pay checks of the miners. The advantage of the check-off to the union is very obvious but that is not a valid argument for its enforcement upon the operator. No doubt the churches, the fraternal organizations, the merchants, the landlords, and other groups could point out the difficulties and the losses they sustain through inability to collect all that is due them, and the unnecessary expense involved in collecting what they do get, as compared with the ease and economy if they could all turn over to the operator their accounts against the individual miners and have them deducted from earnings by the operator.

"Originally the check-off system was used only for dues, but it has gradually been extended to include fines and special assessments, the latter usually for strike funds. In their published statements the bituminous operators make particular complaint against the check-off. In private conversation many of them are inclined to accept the check-off as an established condition but to complain bitterly over its extension to assessments and fines. They strongly object to collecting funds with which they will be fought in case of strike or suspension. In this connection it is interesting to report a statement made by a prominent operator official to one of our investigators to the effect that he was present at the meeting in which union operators first made the suggestion that the check-off machinery be used in their territory by the union as a means of collecting funds for prosecuting strikes in non-union territory.

"What practice should obtain in respect to union membership under a collective bargaining agreement (to quote from the anthracite report) is a debatable question, the answer to which should be arrived at by agreement or mutual accommodation between the parties. But any answer which relieves the union of responsibility for maintaining itself, and thus divorces the question of membership from the service rendered, is bound to be harmful to the union, not to mention the other interested parties.

"Unions, like other institutions, slip easily into arrogance and incapacity when existence is made too easy. Such a condition is sure sooner or later to make them a prey to attack both within and without. This opinion applies with equal force to the bituminous fields. So long as a bare alternative to non-membership in the union is anywhere open, the penalty may remain only faintly noticeable; but when the last steps in compulsory membership shall have been taken, and a 100-per cent monopoly of labor established with methods of automatic financing guaranteed, the union will have created a condition which will greatly intensify the possibilities of internal disloyalties and cliques. Many unions think it bad union policy to have a check-off.

"From this standpoint of its own permanent welfare, the union would seem to be showing a lack of wisdom in insisting on the universal application of the check-off. The check-off is bad for the whole situation and constitutes a steady source of irritation to employers, who are themselves forced to collect and deliver the whips with which they are to be scourged. This injury to a reasonable and proper pride will as surely result in retaliation as do similar injuries to the pride of the employees. On the other hand, it saves the union from the effort necessary to its own health of making close contact with its men; educating its membership and its local leaders; and educating itself through these contacts. This effort would be made necessary by a continuous member-calling campaign.

"The necessity of effort to maintain membership in an organization tends to keep the organization responsive to the sentiments of the rank and file; absence of such necessity tends to dull such responsiveness. It is not to be expected that this healthful effort will be spent where the necessity is not present. To the extent that an institution fails to exercise necessary functions it weakens its stamina, abdicates its sovereignty. We find indication in some territories even now that the operators come much nearer to owning the union than is wholesome from the standpoint both of union and public interest.

"Even though the check-off represents an abdication on the part of the union and is unsound from the standpoint of long-time union policy, it is not likely that it will be abandoned in the bituminous fields. In these fields it appears to be an established institution both in regard to dues and in regard to fines and assessments. The force of habit and established practice are such that the unsettling effect of changing the practice might well overbalance the benefits of a practice inherently more sound.

"The existence of the check-off makes it all the more necessary that the union take steps to correct the evils of the system and to overcome its weakening effects on the relation of the organization to its members. From the standpoint of effective administration and in the interests of wholesome relationships both with members and with operators, it would seem ultimately desirable to abolish the check-off for fines and assessments, but whether or not this occurs, there is certainly a crying need in many of the bituminous fields for a closer relationship and a greater service between the organization and its members. This question will be further discussed in the section on Union Administration."

Cement Shipments Increase

Production of portland cement during August, 1923, according to the Geological Survey, totaled 12,967,000 barrels; as compared with 12,620,000 barrels in the corresponding month of 1922, and 12,620,000 barrels in July, 1923. Shipments for the month were 14,971,000 barrels as compared with 14,361,000 barre's in August, 1922 and 13,712,000 barrels in July, 1923. Stocks at the end of August amounted to 6,077,000 barrels, as compared with 5,746,000 in August, 1922, and 8,081,000 barrels in July of this year.

Railroads Urged to Distribute Coal Cars According to Commercial Instead of Capacity Ratings

Strikes and Transportation Cause Shortages and High Prices—Better Use of Railroads, Not Their Overdevelopment Recommended—Savings by Short Haul Stressed—Find No Evidence of Soft Coal Combustion

The causes of irregular operation of the bituminous coal mines, coal shortages, car shortages, high prices and low prices, and transportation, are treated in a report of the U. S. Coal Commission on "Irregular Operations with Suggestions as to the Remedy for the Same," released for publication on Sept. 20.

The introduction and general recommendations are published in the following pages; the sections of this report treating in detail the questions of irregular operation, overdevelopment and transportation will be published later.

To the President and the Congress of the United States

Among the topics referred to the U. S. Coal Commission for investigation and report is "irregular production" with "suggestions as to the remedy for same." The importance of this matter, including as it does not only irregular mine operation and overdevelopment of the industry but also related problems in the transportation of coal and possible measures of relief, leads the Commission to devote this chapter of the report on the bituminous industry to the subject of Relief from Irregular Operation and Overdevelopment. This chapter treats of the engineering and economic phases of irregular operation, leaving to another chapter the interaction of labor relations and irregular operation of the mines.

Causes of Shortages

Widespread strikes and lack of railroad transportation to carry the peakload in times of extreme demand are the two factors that alone are responsible for the serious shortages of bituminous coal in this country that have several times occurred since 1915.

There have been but two national strikes of the union coal miners, that of November and December, 1919, cutting off some 70 per cent of the soft-coal output; and that of the summer of 1922, affecting the bituminous-coal fields to the same extent and shutting down the anthracite fields completely for about five months. The loss of production occasioned by these concerted withdrawals of the organized mine workers has in each instance caused such general shortage of coal that even after resumption of mining there were long periods of insistent demand and high prices. The strike of the mine workers is the only bar to the continuous production of bituminous coal at a rate considerably in excess of any present possibility of consumption by the industries, railroads and households of this country, and of demand for export.

The bituminous-coal industry rests upon abundant, unmined reserves. The capacity in mines and mining labor is sufficient to produce at least 25 per cent more than the highest rate attained in periods of peak demand, and if demand were spread evenly over the year, the overdevelopment would be even more pronounced. The facilities of the railroads necessary to carry the coal from mines to consumers have not been sufficient in the past eight years to transport as much coal per week as at times the consumers of the country wanted and as the mines were able to dig and load into railroad cars.

The causes of strikes and the possibility of their prevention have been discussed in another chapter of this report. The effect of strikes on the orderly, economic production, transportation and distribution of coal are here considered. Local strikes increase the irregularity of operation and the cost of production, though with the surplus capacity they do not cause shortage of coal. Those affecting larger areas, as fields, such as were fairly common prior to the war in the organized fields, likewise have not resulted in shortage or marked price inflation, again because of the excess capacity of other, adjacent fields that were in position to supply the market thus vacated.

These field strikes, notably those in the Central Competitive Field, were potent factors in forcing the overdevelopment of the soft-coal fields, both union and non-union. The two national strikes had that effect in marked degree on the non-union fields.

The bituminous-coal industry is highly competitive. It is likely that were there never any limitation on production imposed by lack of transportation, there would be little or no overdevelopment because prices would never rise above the competitive level that obtains in periods of full car supply. Such a cure for the overdevelopment of the soft-coal industry and for high prices for coal would simply transfer to the railroad industry the overdevelopment and necessarily increase freight rates. It is estimated that it would cost the railroads two billion dollars to build their facilities up to the point where they could carry the peak loads of coal. This would represent an average carrying charge alone with interest at 6 per cent, of 40c. a ton, on commercial shipments of bituminous coal. Such a solution of the problems of the coal industry could be considered only if none other were possible.

The alternative is better use of the transportation facilities currently available. This means simply the more uniform movement of coal throughout the year. Since the fall of 1922 the railroads have furnished transportation for a production of between 10,000,000 tons and 11,000,000 tons of bituminous coal per week; that is, from 500,000,000 to 550,000,000 tons per year, which apparently at this time is sufficient for the country's requirements and exports. This has not been accomplished without special effort. The railroads must be expected to expand their coal-carrying facilities in step with the expected increase in the nation's coal requirements, but they, in return, should not be permitted to dissipate their efforts in needlessly long hauls of coal.

Operating to hinder the uniform purchase and movement of bituminous coal are the seasonal character of consumption and the fluctuations in consumption attending changes in industrial conditions. The variation in use of household coal represents the extreme in seasonal requirements; the industrial expansion in 1915 is an example of rapidly expanding market due to improvement in business. A further factor, not so important as it was before 1917, is the national habit of buying soft coal as needed, instead of storage against future needs. Large scale strikes, either at mines or in railroads, of course, are positive bars to production.

The consumption of coal is an independent factor not to be changed, except as it is prevented through sheer inability to obtain supplies, by any economic or legislative proposals. It is obviously impracticable to legislate in the direction of forcing the uniform purchase and transportation of coal. The only remedy lies in furnishing an economic incentive to off-season purchase and the consequent storage at the point of consumption of bituminous coal, *at the proper seasons*. As has been stated, the alternative is overdevelopment of the railroads at an initial cost of $2,000,000,000 and an increase in coal freight rates in which the item of 40c. a ton to meet added interest charges would be possibly the smaller part.

Industry is plainly able to forecast with considerable accuracy its purely seasonal fuel requirements, but not those variations attending marked business expansion and contraction. The increases in coal consumption of the winter of 1916, of 1920, even of 1922 were but dimly foreseen, as were the drop in 1919 and the notable slump of 1921. But

the concerted effort in this direction of equalized demand is the proper line of attack and the first steps are correcting those factors that have not only permitted but encouraged irregularity of demand and of production and providing for changes that will supply the economic incentive for the regular purchase and production of bituminous coal.

Irregularity of demand, the natural consequence of ordering coal only as it is required, buying in the fall and winter and not buying in the spring and summer, is the primary cause of present conditions. The habit bred and grew at a time when the development of the railroads was at least as advanced as that of the coal industry, if not more advanced. The practice presented no difficulties. That time has passed, but in the transition there has been no change in the method of business looking to changed conditions, only rules designed to prevent unfair discrimination.

The fact of irregular demand due to seasonal consumption alone offered incentive for development of soft-coal mines in excess of average requirements. If the country called for a maximum tonnage in November, there was a market in November at least for that maximum output, and mines were opened to meet that demand. A decade ago the cost of opening and developing a soft-coal mine was small, by every comparison with today. Coal land was cheap, little machinery was required and that less expensive. The railroads were anxious for the traffic. The periodic good market in fall and winter offered profits. Development, from keeping pace with the country's growth however, grew to overdevelopment as other factors were brought into play.

Among the more important of these factors contributing to overdevelopment prior to 1916, even beyond peak demand, were periodic regular strikes in the organized fields. The most important and regular were those in the Central Competitive Field beginning April first every second year. These strikes came with such regularity that their effect was anticipated. Consumers, particularly the railroads, bought heavily in advance and stored coal to tide them over the strike. This meant a season of very active demand which encouraged development of new mines. In years when these strikes were of more than usual severity the non-union fields were called in to meet added demand for coal; thus their overdevelopment was promoted.

In this manner the irregularity of production caused by seasonal demand, sectional stoppages of production, and local transportation shortages brought on overdevelopment. To these causes are to be added the persistent seeking by railroads and by coal operators in the past 30 years for markets for the newly developing fields south of the Ohio River. In the early 90's the Pittsburgh field supplied 35 per cent of the total production of the Appalachian fields shipping to the Central West and Northwest, and the West Virginia fields shipped 15 per cent. Competition offered by the Southern fields has cut Pittsburgh to 25 per cent in the past 5 years and raised West Virginia to 32 per cent to the total.

Overdevelopment has its evil consequences on the industry itself. It is the cause of the average short working year for the capital invested and for the mine worker. Both have come to expect and to demand a full year's wage for little more than two-thirds of a year's work. This is the waste, that profits neither the mine owner nor worker, that the public is called on to pay for as the cost of overdevelopment. The soft-coal buyer actually does pay that part of it that is represented by the higher unit wage of the worker due to short-time employment. The consumer is only prevented from paying the full amount that capital would collect by the fact of active and sometimes ruinous competition.

Removal of Causes of Irregular Operation and Overdevelopment

The consequences of overdevelopment can be avoided only by removing so far as economically possible the causes that have produced it. Overdevelopment will then diminish to the economic minimum.

The causes and avoidance of strikes have been discussed in another chapter of this report. In the following pages are considered those causes related to production, transportation and distribution. The more important conclusions reached are briefly:

The system under which coal cars are distributed to coal mines in times of transportation shortage should be changed to give first consideration to the commercial ability of the producer to sell coal rather than to ability to produce and load it into railroad cars; and

Given substantial similarity in the grade and quality of coals available to a particular market, there is obvious economy in supplying that market with the coal nearest to it.

The first will furnish the economic incentive for regular off-season purchase and storage of bituminous coal by the consumer and by thus increasing the length of the average working year for the mine and miner, reduce costs of production and prices to the consumer. The second, by minimizing unnecessary and premature development will operate in the same direction and at the same time accomplish savings in the cost of transportation.

History of Overdevelopment

Prior to 1916 there were no nationwide car shortages, miners' strikes or price upheavals in soft coal. Then constant contention of the soft-coal operators was for markets. For years the wage levels and, therefore, costs in the organized fields had been stabilized and standardized. The non-union fields of the south were expanding faster than their older neighbors on the north because of easier mining conditions, lower wage scales, better working time and favorable freight rates.

The ease with which a soft-coal mine could be opened, the comparatively small capital required and the fact that coal is a staple commodity for which there is an obvious, though limited market, induced many to enter the field. There were additions to the list of producers every year, and eliminations. The turnover of companies was high. Well organized and efficiently managed companies with coal reserves of good quality survived and grew—they survived the summers of low demand and grew in the winter, learning all the time the advantage to themselves of regular production and the cost of intermittency and seeking to even out their curves of production by building up regular trade connections and stabilizing their business. Poorly organized and poorly managed or weakly financed companies were unable to face the vicissitudes of the competitive conditions and were forced to the wall.

The influence of the union was at once to stabilize the industry and, through the biennial strike or suspension in the Central Competitive Field, to introduce the largest element of speculative profit and incentive for overdevelopment. The two-year wage contracts with the United Mine Workers in the decade before the war not only standardized wages but strikes as well. The fact that the expiration of these contracts was staggered for different union fields prevented any general cessation of mining if agreements were not promptly entered into. Thus though a prolonged disagreement in one field would shut off coal production for months, other union fields nearby speeded up and supplied the market. A strike of a year affecting half the State of Ohio in 1914 hardly caused a ripple in the market. The miners and operators alone suffered.

In this prewar period from 1900 to 1916 car shortage was locally severe enough at times, but it never assumed national proportions. The coal-originating ends of the railroads, the branch lines and feeders tapping the mine fields were developed in step with the mines. The delivering ends of the railroads, the interchange connections and terminals, were developed in step with the coal-consuming demands of industry. Storms or local rail congestion temporarily produced a car shortage, more notably and often in such highly developed centers as Pittsburgh, where are concentrated not only large coal producing but large coal consuming industries.

The buyers and consumers of bituminous coal had little cause for complaint throughout these years. There was no need to buy coal of poor quality for plenty of the best was available. The price was just about what the buyer was willing to pay. Many producers had no knowledge of any of the elements of the cost of production other than

the actual out-of-pocket expense of digging and loading the coal into railroad cars, and they sold it on the basis of that information.

The soft-coal business was profitable for those companies with good coal and good mines who sold service with their coal. Such companies had regular contract customers whose trade could be depended upon. The majority of soft-coal producers, however, in the prewar period fared indifferently, alternately taking profits and losses.

All the elements of economic maladjustment, all the conditions that confront the soft-coal consuming public and the producing industry, before this Commission for consideration, were present in some degree or form before the war. In one instance only had the help of the federal government been publicly sought by any party and that was by operators in the Middle West, who, beset by internal competition and forbidden by law to seek relief through collective action, turned to Washington for assistance in 1914.

There was overdevelopment, intermittent operation, good profits for some, receiverships for others, high earnings and low earnings, strikes, car shortage and occasional flurries in price and local stringencies in supply. None of these are new. The conditions imposed by the war intensified all these so-called ailments. What had been internal and local questions became national questions with all that implies in its political aspects. This country found itself with a coal problem.

Soft-Coal Shortages Despite Record Output

Production records were broken in 1916, in 1917 and again in 1918, yet the country was short of soft coal. The manufacturing industries stimulated by the war, before the country entered it and afterward, were large coal consumers. The country as a whole entered the winter of 1916-1917 with what might have been adequate stocks under normal conditions. These stocks were entirely inadequate, however, for the protection of the country going at the new high rate of speed. The demand for coal became a rush to get supplies not only for current consumption but for additions to stocks. For nearly two years—that is, from the fall of 1916 to late summer of 1918—the production of soft coal was but sufficient to meet current needs. By September, 1918, the situation was by way of being tranquilized by the gains in storage coal in the hands of consumers.

By the first of November, 1918, the enormous total of 63,000,000 tons of bituminous coal had been accumulated by consumers. The next year this stock pile was largely consumed. The strike of 1919 which shut off 70 per cent of the soft-coal production for 6 weeks and the "outlaw" switchmen's strike on the railroads in April and May, 1920, seriously reduced production and forced consumers to use up storage coal. The industrial boom of 1920 thus began with industrial and railroad stocks of coal at low ebb. Again the combined demand for coal for use and for building up storage piles was more than the railroads could handle, though the mines were able and anxious to produce. Prices for bituminous coal rose to unprecedented heights, to fall only when the demand had been satisfied because consumers' reserves had been built up to approximately safe levels.

Again in 1922 consumers accumulated between 60,000,000 and 70,000,000 tons of soft coal in anticipation of a general strike. The strike lasted nearly 5 months and at the end stocks again were low. This time there was a more accurate, general knowledge of the situation, and the country was informed currently as to the status of production and stocks and advised to proceed slowly in accumulation of winter reserves. The result was an orderly distribution of coal and with a few local exceptions a comparatively small increase in the mine price. The huge deficit in anthracite production as a result of the simultaneous strike in that field, some 40,000,000 net tons, in so far as it was overcome, was made up by soft coal without putting an undue burden on the bituminous coal industry.

The price of bituminous coal at the mines in the summer of 1923 dropped back to competitive levels. Transportation has been comparatively open and an average of between 10,000,000 and 11,000,000 tons per week has been produced without stress or strain or inflation of mine prices.

Shortages and High Prices

The shortages of soft coal and price inflations of previous years were of small consequence compared with those of 1917, 1920, and even the fall of 1922. It is to a study of the most recent history that the Commission has directed its attention. Correction of conditions that make possible such high-price orgies as that of 1920 is what the country desires.

The immediate case of high and exorbitant prices of soft coal is a demand from buyers far in excess of the supply. There is no evidence of any combination or monopoly among producers and shippers of bituminous coal, now or at any time, to control production or influence prices. In fact the mines are so numerous, the control so diversified and the competition so keen that such a combination, even to influence the price, is inherently impossible.

It has been the history of the past 10 years that the combination of low consumers stocks and rapid expansion in demand almost inevitably results in a sellers' market in which prices soar. Stocks of soft coal, which are almost exclusively in the hands of consumers and not of producers and shippers, reached a low point in the summer of 1916 and again in 1919, the cause in each instance being the natural reaction from active buying and building up of reserves immediately before. In the first quarter of 1916 consumers were active in acquiring storage coal against an anticipated strike in the Central Competitive Field on April 1. There was no strike but the consumers used up their reserves instead of ordering from the mines and production lagged. After the Armistice on Nov. 11, 1918, the consumers of soft coal devoted themselves to the consumption of the large reserves accumulated prior to that date and let the mines lie idle more than half the time until mid-year 1919. In both these years 1916 and 1919 the average holding of reserve coal over the country declined nearly to two week's supply.

Such soft coal as was accumulated between July and Nov. 1. 1919, when the national strike of union miners in the bituminous-coal region began, was used while that strike endured. Again, the gain in storage during the winter was dissipated by the curtailment in production caused by the railroad switchmen's strike early in 1920. Thus the coal buyers' panics of both 1917 and 1920 were ushered in by low stockpiles.

The initiation of active buying of coal, as of any other commodity, tends to elevate prices. The sharp activity that characterized the coal market in the fall of 1916 and throughout 1917 was the immediate result of consumers' anxiety for coal. Stocks were low, business was booming and more coal was required to manufacture and transport the products of industry. Without coal nothing could be made to fill the orders and the industrial began to bid for coal. He set the price.

Effect of Car Shortages on Production

The price went up under these circumstances because the consumer could not get coal as fast as he wanted it. This inability was not due to lack of soft coal in the ground, of mines, or of miners, but to lack of transportation. The railroads were and are equipped to carry a normal tonnage of coal from the mines to market. Nearly 90 per cent of the soft coal produced requires transportation to markets away from the mines, and 97 per cent of the transportation is by railroad. Transportation, therefore, may limit production. When it does, there is said to be a "car shortage," though the deficiency is often as much in locomotives as in cars and the trouble often is due to congestion in railroad yards and terminals.

When coal mines get orders for coal they order cars in which to ship the coal. When there are not sufficient cars supplied to fill these orders the buyer cannot get all the coal he has ordered or contracted for. The car shortage results in a coal shortage. Distribution and the ordinary course of trade is disorganized. The rising price of coal furnishes the incentive for the opening of new mines and the reopening of old ones. Whereas there had been less than 300 new mines opened per year in the 6 years prior to 1916, there were 454 new soft-coal mines in 1916, 1,285 in 1917, 1,573 in 1918 and 1,058 in 1919. Each of the going

mines sought to enlarge its capacity. Coal buyers placed orders wherever they could, often duplicating, sending agents out and giving employment to a host of new coal jobbers and brokers.

There are just so many railroad cars each day to be given to the coal mines. When the orders for cars exceed the number available, the supply is prorated among the mines, the idea being to give each mine the same number of hours work per day or per week. As more mines demand cars, the railroads being bound by law to parcel the supply without discrimination, the older mines are given less. A mine able to produce 10 cars per day, when there is 80 per cent car supply gets 8 cars; with 50 per cent car supply, gets 5 cars. The only way to get more cars is to increase mine capacity and thereby become entitled to a larger proportion. The result of this method was that when every operator made this endeavor none could profit much thereby. There was a scramble for men to increase daily capacity. The new mines had the advantage in part because of easier work and in part because they paid wage bonuses. The old established companies lost ground.

In Indiana County, Pennsylvania, for instance, there are 5 large, old-established producers. This group employed 5,270 men in 1914 and produced 3,800,000 tons of coal. By 1916 the number of men they had declined to 4,126 and by 1918 they had 4,095 men and their production had increased to 4,200,000 tons. Meanwhile, all other producers in this county with 7,496 men in 1914, added to their force and had 8,094 men in 1917 and 8,747 men in 1918. Their production rose from 5,600,000 tons in 1914 to 8,500,000 tons in 1918. In Somerset County, Pennsylvania, the same thing took place. The two largest producers had 4,189 men in 1914, in 1918 but 2,651. Their production in 1914 was 3,700,000 tons and fell to 2,600,000 tons in 1918. All other producers, many small, had 7,580 men in 1914, and 8,363 in 1918. Their production increased from 6,500,000 in 1914 to 7,700,000 in 1918. This is typical of what was happening all over the soft-coal fields.

Many of the new mines were small and inefficient, many were wagon mines. Their costs were higher, but that mattered not, for they had no contracts at low prices and the spot market took their product at almost any price. These new mines took cars and labor from the older mines, and by so doing increased the difficulties of the railroad and disrupted labor relations.

Normally between two-thirds and three-fourths of bituminous coal is sold on contracts, for the most part covering a year, usually from April 1 to April 1. Prior to 1917 shippers had little difficulty in fulfilling their contracts, as the only interference was from an occasional brief car shortage. The major strikes that affected large areas were discounted in advance and no contracts made over their duration. However, the car shortage that began late in 1916 was severe enough to cut down the output of individual mines and thus reduce shipments on contract. Shippers were uncertain of what tonnage they could get out and consumers what coal they were going to receive on their contracts. Receipts of contract coal were also reduced because some shippers, lured by the higher prices in the spot market, failed to ship coal in accordance with their agreements. The net result was a wild scramble for free coal—that is coal not under contract. Later in 1917 the government fixed prices, but it was not until April, 1918, that the distribution mess was cleaned up.

Assigned and Private Cars

Out of all this confusion there emerged the assigned car, railroad and privately owned, and the consumer owned mine. Since with recurring car shortages there was no assurance of getting full delivery on contract coal, and at such times the open market price on free coal was high, that the railroads resorted to a device known as the assigned car to get their fuel. Since getting coal in such periods of shortage is nothing more or less than getting cars, the railroads would make agreements with mine operators to give a specified mine a full quota of cars in which to load railroad fuel. Such a mine, of course, worked all day every day. It attracted the best labor in the field, it had the lowest cost because of full-time operation. The railroad cars given to mines for loading railroad fuel on the assigned-car basis were taken from the available supply before distribution was made to other mines shipping commercial coal.

Coal cars had for years been owned by a few soft-coal producers. Shipping their own coal in their own cars was a part of the service these few companies gave their customers. For a few the advantages even times of car surplus were sufficient to warrant the heavy investment. The advantage became great in times of car shortage, for the producer with a sufficient supply of his own cars was independent of the railroad supply and could operate his mines more nearly to full time. He was able to furnish coal to his customers when others could not. This fact made the producer with his own cars the most desirable source of supply.

Coal of suitable quality is the most important raw material of railroads, public utilities and of certain industries, as iron and steel. The first step of this important class of users toward stabilizing their fuel supply was the purchase or development of coal mines. Thus at least proper quality and freedom from high market prices were assured. The number and capacity of consumer-owned mines has increased notably in the past 6 years. In 1920 the production from these mines represented some 25 per cent of the total output of soft coal. The movement toward ownership of coal mines by consumers has been a factor of no small importance in adding to the overdevelopment of this industry, since the tendency has been to open virgin coal rather than to acquire old mines.

But owning the coal mines it not in itself assurance of a fuel supply. The consumers' plants are distant from the mines and the coal must be hauled over the railroads. When transportation is abundant the consumer can obtain coal to his liking without difficulty and at reasonable price, and at such time his ownership of a mine may be of doubtful advantage. If the consumer requires 1,000 tons of coal per week and develops his mine to produce that quantity, he will find his supply reduced in times of car shortage to whatever percentage of car supply the railroad may allot the mines. To get 1,000 tons per week he may find it expedient to increase the capacity of his mine to 2,000 tons per week, so that if car supply falls to 50 per cent, he may still get his 1,000 tons of coal. Mine capacity is overdeveloped on this account.

To overcome this difficulty some consumers likewise have their own coal cars. Under the rules that have obtained in the past, but which the Interstate Commerce Commission changed in its decision of June, 1923, on assigned and private coal cars, these private cars could be given to the mines in any quantity, regardless of how meager the supply of railroad-owned or "system" cars might be. The consumer owning coal cars, with or without his own mine, under the rules in effect until now, has been in a favorable position to get coal at any rate he desired, regardless of "car shortage." A number of railroads not reaching the coal fields have bought coal cars to send to mines on other roads exactly as public utilities or industrials have done.

The private coal car has been a good investment in the past 6 years, because of the extended periods of "car shortage." On the other hand the growth of the practice of assigning cars, both railroad for fuel coal, and private, has worked to the disadvantage of producers and consumers not in position to avail themselves of this form of favored car supply. Large public utilities, for instance, have taken the position that the character of the service they rendered the public is as essential as that of the railroads, and that they should be allowed to have "assigned cars" from the railroad supply, to protect shipments of coal to them purchased under contract.

The inequalities introduced by the assigned car are illustrated by the figures for the Pennsylvania R.R. in Pennsylvania. In 10 months of 1920 the commercial mines—that is, those depending on their distributive share of railroad cars—received 50 cars for every 100 they ordered. The mines getting assigned cars, of course, received a full supply. If all cars had been evenly distributed each mine would have had 69 cars of each 100 ordered. That is, the commercial coal mines lost 19 out of every hundred cars ordered that asigned car mines might have full time. In September, 1922, one-fourth of the coal cars on this road

were assigned; in January and February of 1923 two-thirds of the cars were assigned. In February commercial operators were receiving 18 cars out of every 100 ordered.

The Interstate Commerce Commission decided in June, 1923, that the practice of assigned cars, railroad or private, is unfair and has ordered it discontinued.

Doing away with assigned cars will not appreciably increase the total transportation the railroads can offer the soft-coal industry. Having no assigned cars will not ease the problem of those consumers that must have large, regular supplies of coal. Unfair as it has been found to be, the assigned car was an effective prop on which a growing number of consumers were coming to lean. The reason of course, was the protection of supply coupled with assurance of lower price. There should be a substitute method meeting these requirements, but without the objection of the assigned car practice.

Commercial Ratings Recommended

The Commission recommends that in the future in determining the rating of a mine for the purpose of car distribution, consideration should be given to the commercial ability of the mine to sell its production as well as to its physical capacity to produce.

In the years before the war certain of the important coal-loading railroads in this country at one time or another did give consideration to commercial ability as well as to physical capacity. In some instances both factors were given equal weight. In other instances one or the other factor was given a weight double that of the second. In the course of the development of coal-car distribution rules during the war and post-war periods, reliance upon commercial ability to sell and ship coal was discarded. This was perhaps a natural result of the fact that over a long period during these years there was a ready market for practically all the bituminous coal that could be produced and transported.

But in the future when in the face of the existing state of the industry it may be expected that there will come long periods when the market cannot by any means absorb the potential production, there is good reason for again considering commercial ability to sell as well as physical capacity to produce bituminous coal, in determining the rating of a mine for car distribution purposes. The Commission's recommendation is that in determination of such ratings in the future, the commercial factor should be given a controlling influence.

The Commission understands, of course, that the primary duty to determine a just and reasonable rating lies with the railroad which distributes the cars. But in our opinion, if the railroads for any reason are slow to adopt the method of rating here suggested, the principle is of sufficient concern to justify investigation of the entire subject by the Interstate Commerce Commission on its own motion to the end that just and reasonable and otherwise lawful methods of rating and distribution consonant therewith may ultimately be established.

Study convinces us that action along this line is necessary to effect relief to the industry and to the consuming public. Such a system of distribution would certainly:

Furnish incentive to the producer to operate during dull seasons, and thereby more evenly distribute the transportation load throughout the year.

Furnish incentive to the consumer to buy and receive coal above actual current requirements in dull seasons and thereby more evenly distribute the transportation load throughout the year.

Remove the incentive to secure preference in the use of transportation facilities at certain periods by the use of the assigned car, either railroad or private.

Mitigate the effects of coal car shortage by reducing car shortage in amount because leveling out demand and production, and taking the pressure off the spot market in times of car shortage by permitting continuous performance on contracts.

The practical effect of a system of distributing transportation based on ability to sell coal together with ability to produce would be:

To straighten the production curve, leveling off peaks and filling valleys not only of the industry as a whole, but of individual mines.

To reduce the opportunity for the sporadic opening of speculative mines.

To increase the opportunity for regular operation and thus reduce the cost of production, and on the average the cost of coal to the consumer without undermining the profits of those operators who elect steady business at moderate profits as against intermittent operation at speculative profits.

To reduce the existing overdevelopment of the industry and curtail unnecessary development.

To promote consolidations for the purpose of marketing; that is, the grouping of smaller producing units for selling purposes.

This would advance co-operative marketing, already under way for years in certain fields.

To increase the transportation and thereby the production of coal in times of severe car shortage by reducing at such times the number of mines to be served with cars.

To increase the average days per year the miner is given opportunity to work.

The proposed factor of commercial car rating should not be based on contracts between buyer and seller. The proposed ratings should be determined by quantity of coal shipped during the last protracted period of car surplus, whether the shipment were on long-time or short-term contract or spot sale. It is expected that it would be to the mutual advantage of buyer and seller to engage in at least 12-months contracts under such a system enabling the seller to move the coal in the low market season and the buyer to insure a supply guaranteed as to price and tonnage in times of car shortage and higher prices.

To administer such a system of car ratings would require that the railroads maintain no more records than they now have. A weekly or monthly summary of tons shipped from each mine, or by each group of mines operated by the same company in the same field would be the base for the commercial rating. For the capacity rating necessary to govern distribution of cars available over and above those required to fill commercial ratings, the records now maintained as the base for rating mines would be used.

The introduction of the commercial factor in rating mines is not open to objection on the score of discrimination. The producer, large or small, has equal opportunity to take advantage of the system. The private coal-car owner should be permitted to use those cars continuously throughout the year, but should have no advantage over the shipper in system cars if there were a shortage of transportation facilities other than of cars. The rules by which the commercial factor is applied should be designed so as not to encourage ill-advised competition through reductions in wage scales.

The change suggested in the system of rating mines may require some modification of the Transportation Act.

Coolidge Urges Study of Anthracite Prices By Federal Trade Commission

President Coolidge has suggested to the Federal Trade Commission, it was stated at the White House, Sept. 14, that this body devote some attention to wholesale and retail prices of anthracite coal following the resumption of operations in the hard-coal fields. The Coal Commission recently made public an amplified statement regarding pyramiding profits in hard coal in which it was shown that during the strike of 1922 some carloads of anthracite coal changed hands among wholesalers as many as four times, a marginal profit being added by each party to the transaction so that the ultimate margin ran as high in one instance as $4.25 per ton.

Measures against excessive prices, it was pointed out at the White House, largely are matters of local administration of the law, but it was said that in so far as the federal law can reach this subject, the effort of the national administration would be exerted toward obtaining coal at a reasonable price to the consumer. This, it was said, probably best could be accomplished by the Federal Trade Commission, with the force of public opinion behind its findings.

Coal Retailers Assail Pinchot Settlement

In a statement presented to Chairman Hammond of the U. S. Coal Commission Sept. 12 by Roderick Stephens, chairman of the Governmental Relations Committee of the New York State Coal Association, the National Retail Coal Merchants Association declares that the Pinchot settlement of the anthracite strike is merely a victory for "arrogant organized labor"; that the Governor of Pennsylvania sought peace at any price, and that he completely ignored economic facts concerning the retail dealers. Arbitration was "relegated to the scrap heap," it says.

Proceeding, the statement says: "We are distinctly opposed to the proposal of Governor Pinchot that the cost of the arrangement he has proposed in settlement of the controversy between the anthracite operators and the United Mine Workers shall be borne by the retail coal trade. . . .

"Another anthracite crisis has been passed, and Governor Pinchot is modestly accepting the laurels being thrust upon him as the protector of the public interest. Like all settlements arrived at in a political atmosphere, it has been attained by the age-old practice of 'passing the buck.'"

Commission Report on "Pyramiding" Is One-Sided, Say Wholesalers

Characterizing the recent statement of the U. S. Coal Commission on pyramiding of profits on the part of the middlemen as "one-sided," the American Wholesale Coal Association on Sept. 17 made public a letter of protest, addressed to the Commission and signed by Charles L. Dering as president of the association.

The entire wholesale coal business of the country in 1921 was carried on at a net profit of only six-tenths of a cent per ton and the entire year's business of the central western division was handled at a net loss of 2c. per ton, the letter declares, while at no time since 1916 did the average margin of wholesalers of the country as a whole exceed 8 per cent of the cost of the coal to them. Attention is called to the agreement signed with Secretary Hoover in July, 1922, by which the total service charge of wholesale dealers should not exceed 8 per cent, it being contended in the letter that this agreement put the stamp of the government's approval on an 8-per cent margin.

The protest of the wholesalers is against the broadcasting by the Coal Commission of its find of 750 carloads of anthracite handled in New England last winter with heavy wholesalers' margins and its silence on other matters, which misled the public to a belief that all wholesalers take such profits and follow such practices.

Kansas Industrial Court Asks Ouster Suit Against Jackson Walker Co.

The Kansas Industrial Court wants to put the Jackson Walker Coal & Mining Co. of Kansas out of business. After investigation, the court finds that the company is restricting coal production from 9,000 acres in southeastern Kansas without permission, is depriving a good many miners of a chance to work and is about to force a group of sublessees into ruin. It has asked the State Attorney General to institute an ouster suit against the company.

The court's investigation showed that when the government ordered the Santa Fe R.R., years ago, to dispose of its coal mines in Kansas, the sale was to the Cherokee & Pittsburg Coal & Mining Co., all of whose stock was owned by the Santa Fe except a few officers' qualifying shares. Then the land was leased by the Jackson Walker concern, which was financed by the former company. Jackson Walker, in turn, leased parts of the tract to other operators, who now have invested about a million dollars in improvements. With a contract to supply the Santa Fe all the Kansas coal the road needed, the Jackson Walker Co. took a contract royalty of 40c. a ton from all sublessees. Now that the railroad has turned to oil the sublessees say they cannot sell coal on the open market unless the 40c. royalty is reduced. The Jackson Walker Co.'s refusal to reduce gives the Industrial Court its basis for the charges now set up.

S. P. A. Clough, president of the Jackson Walker company, testified it is the company's policy to conserve its coal supply until the relative positions of oil and coal as fuel make it more advantageous to use the coal.

J. A. McDermott, presiding judge of the court, in addition to signing the general findings, wrote an additional report in which he asserted that unless their contract is modified or some unexpected substantial improvement occurs in the coal industry, the sublessees face heavy financial loss and ultimate ruin. He calls the Jackson Walker course "piracy" and declares the elimination of the company from the operation of the subleased land would be beneficial.

Colonel Reveals "Plot" to Blame Herrin on Labor; Chamber of Commerce Denies It

Echoes of the Herrin massacre are heard periodically. The last one was set up when Colonel Sam Hunter, of the Illinois Governor's staff, declared to the Illinois Federation of Labor at a convention Sept. 11 that efforts were made by men of the Illinois Chamber of Commerce to get him to testify "to lies that would have obtained the indictment of Gompers, Lewis, Farrington, Walker and Olander" in connection with the massacre. Walker and Olander are labor leaders. Colonel Hunter did not divulge any details nor mention the names of men who approached him.

A prompt denial that the Illinois Chamber of Commerce had suggested any such thing to Colonel Hunter was forthcoming from John H. Camlin, president of the state chamber. Mr. Camlin publicly challenged Colonel Hunter to name a single man who had made such a proposal for the chamber. Colonel Hunter did not immediately reply.

The Colonel was at Herrin before and during the massacre of June 21, 1922, representing Governor Small, and declares he urged the Governor and Adjutant-General Carlos Black to send state troops when the trouble became serious. Both officials deny this. After the massacre, when county officials did nothing to apprehend or punish the murderers, the Illinois Chamber of Commerce was active in raising a fund to aid the state's futile prosecution of a long list of union miners. The union made a great play, at the time, upon the claim that the Chamber and "capital" were doing their best to break down unionism.

Coal-Freight-Rate Hearing On in Denver

With a large number of Western and Middle Western coal operators in attendance, Henry C. Hall, a member of the Interstate Commerce Commission, began its inquiry at Denver, Sept. 10, into coal freight rates between Colorado and New Mexico mines and points in Nebraska, Kansas, and Missouri. The complaint in the case was filed by the Colorado and New Mexico Coal Operators Association, and directed against the Denver & Rio Grand Western and other railroads. The operators charge discrimination against them in favor of Illinois, Wyoming and other coal-producing points.

Illinois Mine Workers Get Rid of Infamous Herrin Strip Mine

The United Mine Workers of Illinois are reported to have sold the infamous Lester strip mine at Herrin, Ill., scene of the Herrin massacre, to a new concern under the name of Mammoth Coal Co., of Benton, Ill. The union has issued no statement of the transaction. S. S. Shive, of Benton, formerly a salesman for the Jeffrey Manufacturing Co. and lately in the mine supply business, is president of the Mammoth Coal Co. D. C. Johns is mine manager. The union bought the mine early this summer for $729,000, presumably to quiet damage claims of the owners against the union.

Commission Ends Work Sept 21; Correction of Coal Ills Still Up to the Industry Itself

This week marks the official end of the U. S. Coal Commission. It will be a long time before its work can be cataloged, read and understood. So far the public is thinking of it in terms of an anthracite-strike settlement, which it did not settle. The union miners have long since backed off and are openly hostile, charging the Commission with writing a brief for the West Virginia non-union operators. Congress is yet to be heard from.

The President has not indicated in detail what he will do with the report and recommendations of the Commission. Automatically the report will be presented to Congress when that body convenes. It was stated at the White House that speaking generally, the President expects to commend the report of the Coal Commission to Congress, but, contrary to the general newspaper reports, there has been no statement that the President will emphasize any particular phase of the Commission's report or that he feels it necessary to do so.

It is difficult to find any coal man who feels that the Commission has done anything constructive. There is no general condemnation of the Commission. Instead it is commonly said that Mr. Hammond and his colleagues did about all that any board could do; but that that isn't much. Nobody accuses the Commission of not being intelligent or honest. Instead the common refrain is: "They found out all there is to know—what every coal man knows is true—but it is beyond the power of any one group of mortals working one year to produce any cure for the troubles of this industry."

Wallop Bogie of "Coal Baronism"

Most observers agree that a service of some value has been rendered in the publishing of so much coal information to the people. That at least calls the attention of a few citizens to the fact that coal men are not robbers and criminals. The bogie of "coal baronism" is dealt a wallop. But the trouble is, as these men see it, too few people are ever going to wade through the Commission's reports to learn what is in them. Nobody could write such reports and broadcast them in such a way as to appeal to popular fancy. Therefore the possible good of the Commission's work is necessarily limited because the Commission produced nothing spectacular.

The only other thing that the coal fraternity can see as a result of the Commission's work is that the country may learn from it that there is no use expecting some federal commission to wave a wand and correct all the ills of the industry. Some other way must be found. That other way the Commission half points out. It is that the correction must be made by the industry itself and that the coal consumers of the land must do their part.

Two of the outstanding conclusions and recommendations which will appear in the final report of the Commission, as forecast in sectional reports made public by the Commission, will be provision for full publicity from operators and miners alike under government supervision, and that many of the most serious problems confronting coal mining may be worked out by the elements of the industry itself far better than would be the case were legislative bodies to attempt to enact mandatory laws dealing with these subjects.

The recommendation for publicity occurs in several chapters of the report so far made public. This means not only publicity of the operators' figures but also publicity as to the disposition as well as the source of funds of the United Mine Workers. The most serious direct criticism that the Coal Commission has made regarding the union is that the mine workers have devoted so little attention to the solution of problems affecting its membership through constructive study. It is apparent that the Commission will recommend against nationalization of the mines.

The Coal Commission during the last week has made public several chapters of its report. One of these was conclusions on "Effect of Irregular Operation on the Unit Cost of Production of Bituminous Coal." A report was released on Sept. 14 giving the recommendations on "Labor Relations in Bituminous Coal Mining," followed on Sept. 17 with an extensive report on this subject.

The Commission released a report on Sept. 20 dealing with the causes and remedies for irregular operation and overdevelopment, and treating of transportation. Its findings on earnings and wages in the bituminous-coal industry and investments and profits in both anthracite and bituminous coal are yet to be published, as are the reports on living conditions and the wholesale and retail trade. It is understood that many of its reports will not be released for publication for several weeks.

Several briefs and statements were filed with the Commission during the week and the Bituminous Operators' Special Committee called on members of the Coal Commission Sept. 13 and renewed their offer of voluntary publicity of prices, costs, etc., through some governmental agency.

A statement in behalf of the National Retail Coal Merchants' Association was filed with the Coal Commission Sept. 13 in which criticism of Governor Pinchot's settlement of the anthracite suspension was voiced.

The wholesalers on Sept. 17 made a formal protest to the Commission on its press release of Aug. 30 regarding pyramiding of prices, alleging that it is unfair.

There has been no decision as to what will be the disposition of the records of the Coal Commission or those of the Federal Fuel Distributor, each of which expire by statutory limitation Sept. 22. The records evidently will go either to the Department of Commerce or to the U. S. Geological Survey. While their term of office will expire Sept. 22, the members of the Coal Commission will remain available to President Coolidge for consultation and advice unofficially after that date.

Pinchot Invites 30 Governors to Confer On Anthracite Situation

Governor Pinchot has sent letters to the Governors of thirty states which use anthracite coal, suggesting that they make an examination, with a view to personal conference later on, of the hard-coal situation in their states. The purpose of the investigation is to prevent unnecessary increases in the price of anthracite because of the wage increase agreed to by the operators and miners at the Harrisburg conference.

The letters were sent to the Governors of states using 1,000 tons or more a year of anthracite. The states are Connecticut, Rhode Island, Vermont, New Hampshire, Maine, New York, New Jersey, Maryland, Delaware, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Missouri, Nebraska, North Carolina, North Dakota, Ohio, South Carolina, Tennessee, Texas, Wisconsin, Alabama, Massachusetts, Virginia and West Virginia.

Abolition of Assigned Cars Deferred Until Nov. 1

The Interstate Commerce Commission has postponed the effective date of its order abolishing assigned cars until Nov. 1, 1923. This is the second time the effective date has been postponed. In its order dated June 13 the I.C.C. abolished assigned cars as of Sept. 1, but on July 25 the effective date was postponed until Oct. 1.

Anthracite Miners Ratify New Wage Agreement and Return to Work

Governor Pinchot's peace plan between the anthracite miners and operators, signed at Harrisburg by the union chiefs and operators nearly two weeks ago, was ratified at the tri-district convention of the miners at Scranton late in the afternoon of Sept. 17, the first day of the convention. The 155,000 mine workers who had been idle since Sept. 1 returned to work yesterday morning. The contract was not signed, however, until 1 p.m. at Milford, the home of Governor Pinchot.

In the convention hall, where 500 delegates representing every local in the hard-coal field were seated, there rose only twenty voices in objection to ratification. This little group represented some of the day men employed about the collieries, who are not satisfied with the 10-per cent increase.

Better Inspection and Education Will Lower Hazards of Mining, Says Commission

Increased inspection and continued education of all men in the industry are emphasized by the U. S. Coal Commission as outstanding factors in reducing the hazards of coal mining in a report on "Safety in Bituminous Coal Mining," made public by the Commission Sept. 18.

In this report the Commission states its conclusions on this subject with a summary of the findings of a committee selected by the Bureau of Mines at the request of the Commission to investigate this subject. This committee comprised: E. A. Holbrook, chairman, dean of Mining School, Pennsylvania State College; W. M. Wolflin, chief engineer, California Industrial Accident Commission; J. J. Rutledge, Chief of the Maryland State Bureau of Mines; W. B. Plank, head of mining department, Lafayette College; R. N. Hosler, superintendent, Coal Mine Section, Pennsylvania Compensation Rating and Inspection Bureau; J. H. Griftner, the Associated Companies, of Hartford; F. P. Hanaway, United Mine Workers of America; T. A. Furniss, Bituminous Operators' Special Committee, and W. W. Adams, statistician, U. S. Bureau of Mines. The detailed reports prepared by this committee will be issued later in three sections treating different phases of the subject.

In its summary of the findings of the committee and conclusions of the Commission, the Commission states that more men are killed from falls of roof and coal than from all other underground causes combined and that in many districts it is more dangerous to transport coal underground than to mine it. While mine explosions attract wide attention owing to the large number of men involved, the report states, the deaths underground from this cause are only 12 per cent of the total. Differences in laws, regulations, customs and appliances affect the accident rate more than any difference in natural conditions, it is stated. If accidents could be reduced, the average bituminous miner would live the normal life span, the Commission reports, as there is no positive evidence that soft-coal miners are subject to special occupational diseases.

Using the comparative compensation rates of Ohio and Pennsylvania as a basis, the report states that 10 per cent of all occupations listed take a higher rate than bituminous-coal mining and 90 per cent a lower rate. State mining laws and compensation insurance inspection are the two great factors for mine safety, the report states. The majority of the investigating committee felt that certification of miners is sound in theory and an aid to safety, but the operators' representative held that in practice this law gives control of all miners to the union.

The Commission declares that the Bureau of Mines has accomplished much for mine safety work, but that the appropriation given it for this purpose should be sufficient to double the present personnel and equipment. More safety service inspection work by the Bureau also is recommended. Regarding inspection, the report states that there is too much politics in some of the state departments. The codes of some states need revision badly, it is declared.

Unification of basic points in the various state laws would increase safety, it is asserted. Every operating company should foster first aid, provide a safety inspector and personal instruction in safety to the miner. The union has exerted a positive influence in obtaining safety legislation, it is pointed out. The Commission declares that insistence on ability at least to understand spoken English should be made a condition of employment in coal mining or the employee should work under a foreman who speaks his language.

Overseas Coal Export Situation Improved Only Slightly Since July

Summarizing the overseas coal export situation as of Sept. 1, Federal Fuel Distributor Wadleigh says in part: "There have been no new developments in the coal export market during August. There are indications of a cleaning up of conditions in European markets brought about by the Ruhr occupation, but it is still considered useless and inadvisable to make any statements or predictions regarding the existing state of affairs or the future outcome of the conditions in the Ruhr district. The ocean freight market has been quiet and dull; rates are still at low levels and conditions but little improved over those obtaining in July. Prices continue at the lowest levels of the year, both at British ports and on this side."

In United States markets "actual charters reported for August have decreased as compared with previous months and export tonnages also have decreased. Inquiries, however, are still being made for future shipment and there seems to be a decided feeling of optimism in the trade as to the future of our export business. Prices of U. S. coals f.o.b. tidewater for export continue low, with but little change since Aug. 1. August tonnages of coal show a decrease as compared with those of July, which in turn were lower than overseas shipments during June and May. Export of coke overseas showed an increase during August although only two charters were reported as having been closed in that month."

Illinois Operators' Central Control Board To Replace Divided Representation

The three operators' associations of Illinois though remaining separate are proceeding definitely to organize a central control board the plan for which was accepted last month. Matters of labor and state-wide policy are to be placed in the hands of a committee of eight men, five representing the Illinois Operators' Association, two the Fifth and Ninth District Association and one the Central Illinois Association. Disagreements under the labor contract which cannot be settled by operators' commissioners with the men will be carried to this one board instead of to the several joint boards of association officials and miners which have previously functioned. Greater centralization of control over operators' affairs is hoped for. The appointment of the eight members is expected after an operators' meeting this week.

Federal Trade Commission to Probe Charge Of Pyramiding by Middlemen

The Federal Trade Commission, according to a press report, is preparing to investigate the charge of pyramiding of anthracite prices by middlemen. At a meeting on Wednesday the commission began work on a program for an inquiry based on a report issued by the U. S. Coal Commission Aug. 30, the probe to be conducted with a view to ascertaining whether wholesalers have been guilty of unfair trade practices in violation of the Federal Trade Commission Act.

American Mining Congress Adds Technologic Sessions As Adjunct to Its Annual Exposition

Beginning Sept. 24, the American Mining Congress will hold its Twenty-sixth Annual Convention and a National Exposition of Mines and Mine Equipment in the Auditorium at Milwaukee, Wis. This convention program divides itself into five parts covering Industrial Co-operation, the Problems of the Coal Industry, those of the Metal Industry, Standardization and Mine Taxation.

Under the first head it may be said that the Industrial Co-operation Division of the American Mining Congress, which is now functioning in twenty-three states, will be in charge of this section of the program. It will hold two sessions. The first will be at 2 p.m. Tuesday, Sept. 25, at which W. A. Grieves, chairman of the Industrial Co-operation Division, will present a report covering the work of the division. He will be followed by Norman W. Schlicter, of West Virginia, J. G. Bradley, of the same state, and other representative men. A second session of this division will be held on the evening of the same day in the Hotel Wisconsin at 6:30 p.m. Sidney J. Jennings, president of the American Mining Congress, will preside, and the speakers will include Lawrence F. Abbott, of the Outlook Publishing Co.; Edward J. Henning, Assistant Secretary of Labor, and Cleveland H. Dodge, representing the Phelps-Dodge interests. At this meeting there will be a general discussion of the work of the division.

The second group of discussions will relate to the problems of the coal industry. Albert J. Nason, of Chicago, Ill., will preside. The principal addresses will be made by J. C. Brydon, president of the National Coal Association; Frank D. Rash, president of the St. Bernard Mining Co., Earlington, Ky.; Philip Penna, of Indiana, and coal men representative of other districts.

Standardization Group Has Fourth Sitting

The National Standardization Congress will hold its fourth annual session on the standardization of mining methods, practices and equipment. Its first meeting will be on Thursday, Sept. 27, at 10 a.m., at which addresses will be made by A. J. Durgen, special representative of the Department of Commerce, who will be present at Milwaukee at the special request of Herbert C. Hoover, Secretary of Commerce; Warren R. Roberts, chairman of the coal-mining branch of the Standardization Division of the American Mining Congress; Charles A. Mitke, of Bisbee, Ariz., who is chairman of the metal-mining branch of the same division of the congress, and Albert W. Whitney, chairman of the American Standards Committee.

In the afternoon of that day a joint conference will be held at which several reports will be presented and discussed. The reports will be on Drilling Machines and Drill Steel, Underground Power Transmission and Power Equipment, Mining and Loading Equipment, Mine Timbering, Metal-Mine Accounting, Underground Transportation and Mine Ventilation.

At 10 a.m. on Friday the committees reporting will be those on Mining and Smelting Practices, Outside Coal-Handling Equipment, Fire-Fighting Equipment, Mine Drainage, Methods of Mine Smelting, Mining Excavating Equipment and Mechanical Loading Underground.

The fifth general group of discussions will be devoted to the problems of taxation. Among those who are expected to address the meeting are Paul Armitage, of New York City; George E. Holmes, Wade Kirk of Joplin, Mo., and other well-known tax accountants and lawyers.

An entirely new feature of the convention, which runs almost continuously and every afternoon for three days is the Open Forum for discussion of equipment problems—informal discussions of the practical operating problems of mining men in handling, selection and adjustment of mine equipment and mine machinery under varying conditions.

The program in brief is as follows:

Tuesday, Sept. 25, Conference Hall

1:30 p.m.—Subject, Rock Drills; Chairman, D. E. A. Charlton.
Question—Churn Drills vs. Air Drills for Open-Pit Work.
2 p.m.—Subject, Explosives; Chairman, N. S. Greensfelder.
Question—Means of securing co-operation from miner in using explosives that will produce maximum quantity of lump coal.
Question—Disadvantage of dynamite cartridges of small diameter.
2:30 p.m. to 4 p.m.—Subject, Mine Transportation; Chairman, R. Dawson Hall.
Question 1—Advantages of standardized track gages and standardized frog switches and turnouts.
Question 2—Mine cars, their design and effective use.
Question 3—Effective lubrication of mine cars.
Question 4—When and where to use gasoline trolley and electric storage-battery locomotives.
Question 5—Roller bearings vs. plain bearings and other types of axles in mine cars and mine locomotives.
4 p.m.—Subject, Shoveling and Loading Machines; Chairman, R. Dawson Hall.
Question 1—Advantages of the caterpillar shovel.
Question 2—What are the principal requirements to consider in selection of underground loading and shoveling machines, and what are their limitations?
5 p.m.—Subject, Safety Appliances; Chairman, H. G. Bell.
Question 1—What can be done to further the development and introduction of safe equipment for hoists, pumping and loading machinery?
Question 2—Mine ventilation and its application to various mine conditions.

Wednesday, Sept. 26.

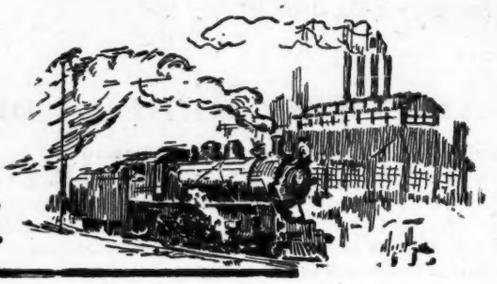
1:30 p.m.—Subject, Crushing, Screening and Separating; Chairman, C. F. Willis.
Question 1—What is the field for magnetic separators?
Question 2—Can manufacturers of crushers and screens work together more fully for mine operator's advantage?
2:30 p.m.—Subject, Underground Power Equipment and Transmission; Chairman, Percy Barbour.
Question 1—Alternating vs. direct current in mine operations from the standpoint of efficiency and safety.
Question 2—Relationship of feeder lines to return current.
3:30 p.m.—Subject, Pumps and Mine Drainage.
Question 1—Centrifugal vs. Plunger Pumps.
Question 2—Effective use of acid-resisting metal in pumps.
4:30 p.m.—Subject, Hoists and hoisting equipment; Chairman, D. E. A. Charlton.
Question—Hoists and their application to mine problems.

Thursday, Sept. 27, 1923.

2 p.m.—Subject: Power Plant Equipment in Mining Enterprises; Chairman, Percy Barbour.
3 p.m.—Subject, Power Transmission; Chairman, Percy Barbour.
4 p.m.—Subject, Use of Traveling Cranes in Mining.
Question—Are there any operations around a smelter or stamp mill in which a light mobile corduroy crane can be used to advantage?
4:30 p.m.—Subject, Welding in Mining.
Question—Advantageous use of various types of welding.

The convention will close on Friday evening at the annual banquet, where among the speakers will be Max W. Babb, vice-president of the Allis-Chalmers Mfg. Co., W. R. Finley, president of the Chicago & Northwestern Railway Co., and Irvine L. Lenroot, U. S. Senator from Wisconsin.

Production and the Market



Weekly Review

The soft-coal market slumped slightly following the settlement of the anthracite strike. Spot demand fell off and prices showed a slight decrease. Contract coals moved in good volume although consumers are indicating a desire to have shipments slow down. Spot business is barely sufficient to keep prices at their present level, and in some sections of the country no improvement is looked for now. Producers of soft coal are disappointed at the way the anthracite trouble was settled, particularly because of the increase in wages, declaring it will make it more difficult for them to deal with the union next Spring.

Coal Age Index for Sept. 17 shows a decline of three points to 202 from the previous week, with an average price of $2.44, dropping back to the Aug. 27 figure.

Although the anthracite mines have been completely shut down, river dredging and culm washing netted about 5,000 tons during the week ended Sept. 8, in addition to which there were shipped approximately 1,000 cars of steam coal drawn from storage piles.

Soft coal is being produced on an average of 11,000,000 net tons weekly, notwithstanding slow demand and low prices. In August production was 48,864,000 net tons. The first eight months of the year recorded a total of 367,260,000 tons, 18 per cent ahead of the average production of the corresponding periods of the nine years 1914-1922.

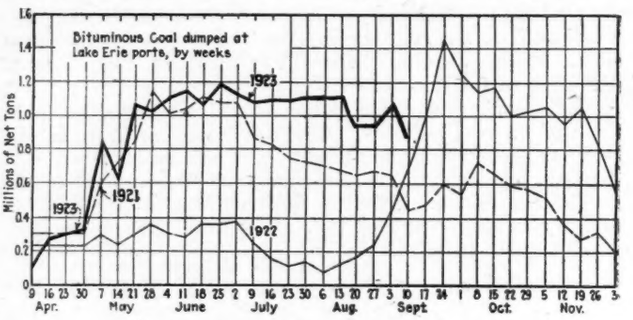
Car shortage is increasing and there are fewer reports of no market, particularly in the Middle Appalachian region, Illinois and the far West.

One of the large producing companies announced an increase of 70c. per ton in the mine price of domestic coals early this week. Several other companies said they had reached no decision regarding their prices at that time. Consumers feel there is no need for anxiety regarding supply and are not showing great desire to fill their bins now.

The Chicago market reports a fair domestic demand for various coals, due to a drop in temperature, while in the Northwest the demand for nearly all fuel, excepting anthracite stove size, dropped off following the settlement of the hard-coal strike. The Pittsburgh market is inactive for the same reason, while in New England there is no immediate improvement in sight.

Bituminous screened coal and coke as substitutes for anthracite have practically dropped out of the market. There is almost no call for the former and the demand for coke is much slower, with quotations for the latter lower than they were last week.

There is a feeling of optimism in the export trade despite the falling off in demand and inquiries during the past few weeks. While inquiries have been slow,



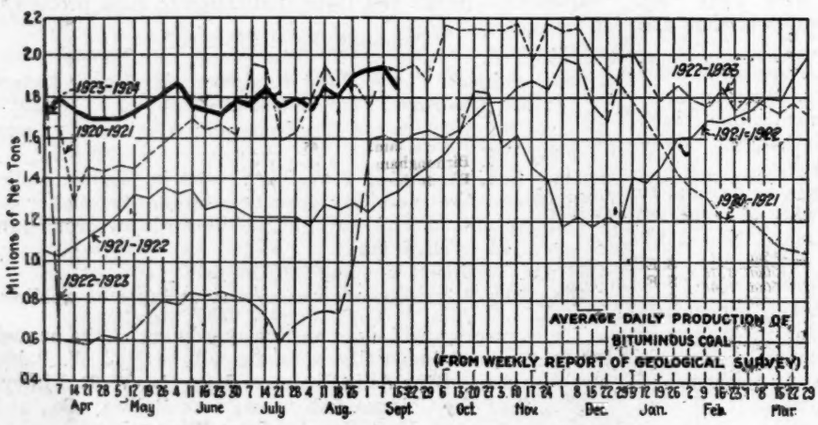
LAKE COAL DUMPED
(Net Tons)

	Week Ended Sept. 10	Season to Sept. 10
Cargo	756,917	19,616,851
Fuel	49,236	1,031,582
Totals	806,153	20,648,433

exporters believe that trade will soon pick up. Coal is accumulating at Hampton Roads and prices are lower.

Inquiry for Welsh anthracite eased considerably following the ending of the strike. Several cargoes are expected to reach the Atlantic seaboard within the next week or two.

Dumpings at Hampton Roads for all accounts during



Estimates of Production
(Net Tons)

	1922	1923
BITUMINOUS		
Aug. 25	6,736,000	11,383,000
Sept. 1 (a)	9,359,000	11,737,000
Sept. 8 (b)	8,791,000	10,433,000
Daily average	1,659,000	1,787,000
Calendar year	241,709,000	379,244,000
Daily av. cal. year	1,136,000	1,787,000
ANTHRACITE		
Aug. 25	37,000	2,165,000
Sept. 1	37,000	1,893,000
Sept. 8	51,000	(a) 5,000
COKE		
Sept. 1 (b)	138,000	322,000
Sept. 8 (a)	137,000	347,000
Calendar year	4,360,000	13,531,000

(a) Subject to revision. (b) Revised from last report

the week ended Sept. 13 amounted to 327,871 net tons, as compared with 343,733 tons the previous week.

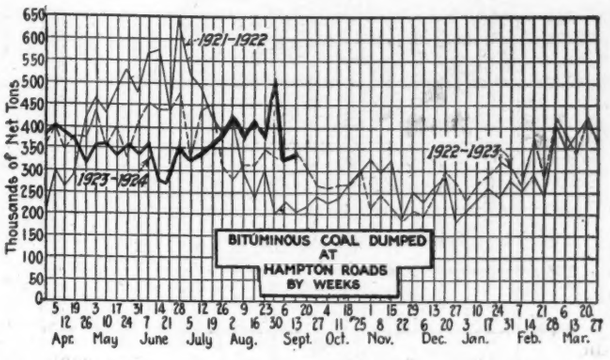
Chicago Prices Not Strong

A fair domestic demand for various coals around Chicago was caused by a cold snap lasting until Saturday. On that day the mercury rose. Weather observers prophesy warmth for the rest of September. Coal men, by the same sign, prophesy a slump in business. There is by no means enough business to hold all domestics firmly against the top quotation. Good Franklin County lump and egg sells for $4.35 in spots, but a good deal of it moves at $3.75@$4. Central Illinois lump has a hard time bringing $3.25. Some sags to $2.75. Steam business is slow with prices shading downward. Southern Illinois screenings run as low as $1.25 under pressure and central Illinois to $1.10. Nut coal is slow in all Western fields. Western Kentucky coal is offered in considerable volume in spite of car shortage with steam prices sliding. Smokeless mine-run moves steadily.

Around St. Louis, demand improved for both Mt. Olive and Standard lump for city and country, but smaller sizes drag. This backwatering of nut and screenings has kept mines idle half the time, though they have domestic orders booked for several weeks ahead. One operator in the Standard district hiked his lump price out of sight to stop orders. The St. Louis city trade is largely in the cheaper grades of coal. In anthracite, coke and smokeless there is practically nothing doing.

Kentucky Softens Too

Reduced demand for all kinds of Kentucky coals plus the end of the anthracite strike sufficed to soften prices on both eastern and western Kentucky coals even though a car shortage has developed. West Kentucky lump, which ranged from $3 to $3.25 last week, is now well below $3 and good Eastern gas lump no longer goes at $4@$4.25, but rather at $3.50@$3.75. Steam buyers seem to be out of the market. West Kentucky slack, in one or two places has dropped as low as 75c., but averages 90c.@$1.25.



Although there is bituminous coal in plenty all through the Northwest the demand for almost all fuels except stove anthracite has dropped off because there is no further fear of an anthracite strike. In Duluth, dock operators stopped taking orders for a day or two to inventory hurriedly, fearing they had oversold the popular sizes, but discovered they had enough. In Milwaukee, where retail prices range about $1.70 above Dutluth, a state commission is going to find out whether the operators are basing their charges on rail freights rather than on lake-and-rail. Receipts on the docks are in good volume. There is plenty of time to get the normal winter's supply moved up the Lakes.

Not enough winter has struck the western and Rocky Mountain states to stir up much action in coal. In all fields the steam business is flat and small sizes are backing up while a thin business in domestic sizes goes ahead. Cars are in plenty, but in Kansas there is much complaint against too many flat bottoms. Prices there are unchanged. In Colorado, where bituminous demand is picking up some, circulars show these quotations: Walsenburg lump, $6; nut, $5.50; mine-run, $4.25@$4.50; slack, $2.25@$2.50; Trinidad lump, $5; nut, $4.75; mine-run, $4@$4.25; semi anthracite egg and nut, $7.50; chestnut, $3. Utah mines are still working better than half time in spite of the slow steam

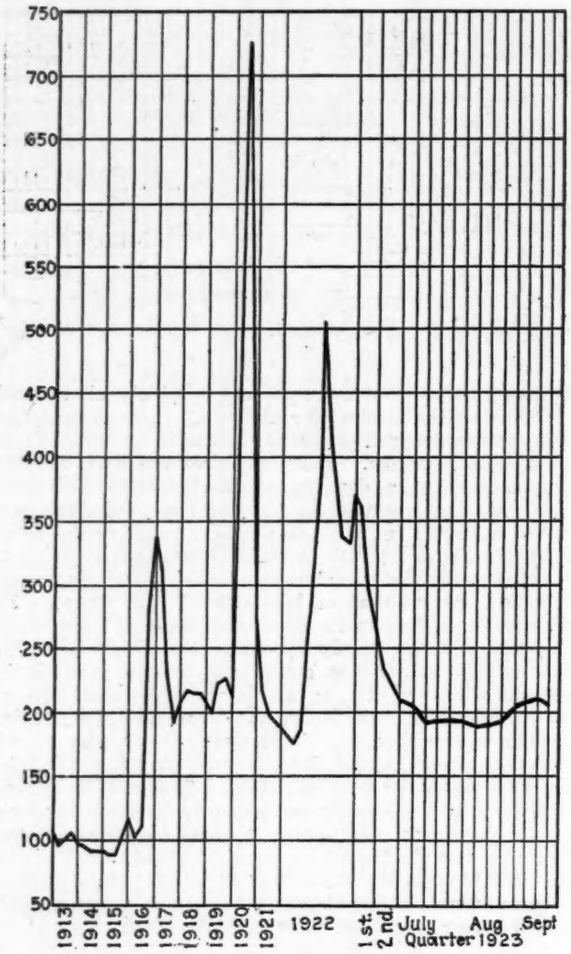
Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	Sept. 18 1922	Sept. 1 1923	Sept. 10 1923	Sept. 17 1923†
Smokeless lump	Columbus	$6.25	$5.95	$5.95	$5.75@$6.15
Smokeless mine run	Columbus	5.75	3.00	3.00	2.75@ 3.25
Smokeless screenings	Columbus	5.50	2.35	2.35	2.25@ 2.50
Smokeless lump	Chicago	6.25	6.35	6.25	*6.00@ 6.25*
Smokeless mine run	Chicago	5.85	3.35	3.35	*2.75@ 3.00*
Smokeless lump	Cincinnati	6.50	6.25	6.25	*6.00@ 6.25*
Smokeless mine run	Cincinnati	5.50	3.25	3.25	*2.75@ 3.25*
Smokeless screenings	Cincinnati	5.50	2.50	2.35	*2.00@ 2.50*
*Smokeless mine run	Boston	8.05	5.10	5.05	5.00@ 5.10
Clearfield mine run	Boston	4.35	2.20	2.15	*1.80@ 2.50*
Cambria mine run	Boston	5.25	2.85	2.85	2.50@ 3.25
Somerset mine run	Boston	4.85	2.50	2.50	*2.00@ 2.75*
Pool 1 (Navy Standard)	New York	5.40	3.25	3.25	3.00@ 3.50
Pool 1 (Navy Standard)	Philadelphia		3.10	3.20	**3.00@ 3.50**
Pool 1 (Navy Standard)	Baltimore	5.50			
Pool 9 (Super. Low Vol.)	New York	4.75	2.55	2.55	*2.30@ 2.75*
Pool 9 (Super. Low Vol.)	Philadelphia	5.60	2.55	2.55	**2.50@ 2.80**
Pool 9 (Super. Low Vol.)	Baltimore	5.10	2.45	2.45	2.40@ 2.50
Pool 10 (H.Gr.Low Vol.)	New York	4.35	2.25	2.20	*2.00@ 2.30*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	5.10	2.15	2.15	**2.10@ 2.35**
Pool 10 (H.Gr.Low Vol.)	Baltimore	4.85	2.25	2.25	2.25@ 2.30
Pool 11 (Low Vol.)	New York	4.10	2.00	2.05	*1.75@ 2.00*
Pool 11 (Low Vol.)	Philadelphia	4.85	1.85	2.15	*2.00@ 2.20*
Pool 11 (Low Vol.)	Baltimore	4.35	1.90	2.00	2.00
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	4.35	1.70	1.80	*1.65@ 1.90*
Pool 54-64 (Gas and St.)	Philadelphia	4.60	1.85	1.85	*1.65@ 2.00*
Pool 54-64 (Gas and St.)	Baltimore	4.60	1.85	1.75	1.75
Pittsburgh scr'd gas	Pittsburgh		3.00	3.00	*2.90@ 3.00*
Pittsburgh gas mine run	Pittsburgh		2.50	2.50	2.50
Pittsburgh mine run (St.)	Pittsburgh	4.65	2.30	2.30	*2.20@ 2.30*
Pittsburgh slack (Gas)	Pittsburgh		1.55	1.55	*1.50*
Kanawha lump	Columbus	5.75	3.05	3.15	2.85@ 3.50
Kanawha mine run	Columbus	5.50	1.90	1.90	1.75@ 2.10
Kanawha screenings	Columbus	5.30	1.15	1.25	1.15@ 1.25
W. Va. lump	Cincinnati	6.85	3.60	3.75	*3.50@ 3.75*
W. Va. Gas mine run	Cincinnati	6.85	1.80	1.80	*1.50@ 1.65*
W. Va. Steam mine run	Cincinnati	5.35	1.80	1.80	*1.50@ 1.65*
W. Va. screenings	Cincinnati	5.25	1.35	1.20	*1.00@ 1.15*
Hocking lump	Columbus	5.75	2.75	2.85	3.00@ 3.25
Hocking mine run	Columbus	5.10	1.85	1.90	1.85@ 2.00
Hocking screenings	Columbus	5.25	1.10	1.20	1.15@ 1.30
Pitts. No. 8 lump	Cleveland	4.85	2.65	2.65	*2.25@ 3.00*
Pitts. No. 8 mine run	Cleveland	4.60	2.10	2.10	*2.00@ 2.10*
Pitts. No. 8 screenings	Cleveland	4.60	1.35	1.35	*1.20@ 1.30*

Midwest	Market Quoted	Sept. 18 1922	Sept. 1 1923	Sept. 10 1923	Sept. 17 1923†
Franklin, Ill. lump	Chicago	$5.40	$4.20	$4.20	*$3.75@$4.35*
Franklin, Ill. mine run	Chicago	4.75	3.00	3.00	2.75@ 3.25
Franklin, Ill. screenings	Chicago	4.45	1.80	1.75	*1.25@ 1.85*
Central, Ill. lump	Chicago	5.10	3.10	3.10	*2.75@ 3.25*
Central, Ill. mine run	Chicago	4.55	2.20	2.20	2.10@ 2.35
Central, Ill. screenings	Chicago	3.60	1.40	1.40	*1.10@ 1.25*
Ind. 4th Vein lump	Chicago	5.25	3.35	3.35	3.25@ 3.50
Ind. 4th Vein mine run	Chicago	4.85	2.60	2.60	2.50@ 2.75
Ind. 4th Vein screenings	Chicago	4.60	1.60	1.60	*1.25@ 1.65*
Ind. 5th Vein lump	Chicago	5.10	2.75	2.75	2.50@ 3.00
Ind. 5th Vein mine run	Chicago	4.65	2.10	2.10	2.00@ 2.25
Ind. 5th Vein screenings	Chicago	4.40	1.40	1.40	*1.20@ 1.35*
Mt. Olive lump	St. Louis	4.75	3.10	3.10	3.00@ 3.25
Mt. Olive mine run	St. Louis	3.90	2.05	2.05	2.20@ 2.30
Mt. Olive screenings	St. Louis	2.85	1.35	1.45	*1.30@ 1.40*
Standard lump	St. Louis	4.75	2.60	2.60	**2.65@ 3.00**
Standard mine run	St. Louis	3.90	2.05	2.05	1.80@ 2.30
Standard screenings	St. Louis	2.85	1.00	0.95	0.90@ 1.00
West Ky. lump	Louisville	4.75	2.55	2.60	*2.25@ 2.50*
West Ky. mine run	Louisville	4.25	1.90	1.95	1.85@ 2.10
West Ky. screenings	Louisville	4.00	0.90	1.05	*0.80@ 0.85*
West Ky. lump	Chicago	4.25	2.75	2.75	2.50@ 3.00
West Ky. mine run	Chicago	4.25	1.75	1.96	1.85@ 2.10
South and Southwest					
Big Seam lump	Birmingham	3.45	3.75	3.75	3.65@ 3.90
Big Seam mine run	Birmingham	2.60	1.95	1.95	1.75@ 2.15
Big Seam (washed)	Birmingham	3.10	2.35	2.35	2.25@ 2.50
S. E. Ky. lump	Chicago	4.25	3.10	3.20	**3.25@ 3.50**
S. E. Ky. mine run	Chicago	4.25	1.80	2.30	*1.75@ 2.00*
S. E. Ky. lump	Louisville	6.65	3.10	3.10	2.75@ 3.50
S. E. Ky mine run	Louisville	5.65	2.00	2.00	1.75@ 2.25
S. E. Ky. screenings	Louisville	5.50	1.20	1.20	*0.90@ 1.25*
S. E. Ky. lump	Cincinnati	6.85	3.75	3.75	*3.25@ 3.50*
S. E. Ky. mine run	Cincinnati	5.35	1.80	1.75	*1.50@ 1.65*
S. E. Ky. screenings	Cincinnati	5.25	1.45	1.30	*0.90@ 1.10*
Kansas lump	Kansas City	6.25	4.50	4.50	4.50
Kansas mine run	Kansas City	5.00	3.50	3.50	3.50
Kansas screenings	Kansas City	2.60	2.60	2.60	2.50@ 2.75

* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in heavy type, declines in *italics*.



Coal Age Index of Spot Prices Bituminous Coal F.O.B. Mines

	1923			1922
	Sept. 17	Sept. 10	Sept. 1	Sept. 18
Index	202	205	204	412
Weighted average price	$2.44	$2.49	$2.47	$4.99

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913, 1918," published by the Geological Survey and the War Industries Board.

market. Bunker coal for the coast is about to be reduced 90c. to stimulate business. Other prices are steady.

Ohio Market Quiet

The after-affects of all the talk that came along with the strike in the anthracite fields is being keenly felt in the Cincinnati market. Buyers who took eleventh-hour chances on filling up before a prospective period of distress have taken elasticity out of the market now that their wants are cared for, at least for several weeks ahead. In the Columbus market there was a slight falling off in steam demand at about the time of the anthracite settlement, operators having a brisk trade in these coals being the first to feel the change, although the general effect was to slow down the entire market. A lull was experienced by domestic producers. Producers and distributors, however, believe that the let-up is only temporary and look for better business towards the end of this month. Steam users who have been accumulating have stopped buying, while a survey shows that stocks in reserve will last from forty-five to sixty days.

Operators serving the Cleveland market say the general demand apparently is increasing in volume and inquiries are more numerous.

The coal market at Pittsburgh has turned quite inactive since the anthracite settlement, but cannot be said to have had any great change in the fundamental relation between production and consumption. During August many consumers who had previously been hand-to-mouth buyers turned in and bought ahead for short distances. It is a question whether the dullness in the coal market is attributable entirely to the anthracite settlement.

With the adjustment of the anthracite dispute, production took a slump in the central Pennsylvania field. However, there is a high production, principally in the higher grades of fuel.

Peak of Dullness Almost Reached in New England

In New England it almost seems that the peak of dullness has been reached, but no improvement is in sight and it is likely to be thirty days at least before any buying materializes. The difficulty which shippers meet with in trying to dispose of cargoes here on the market shows how well saturated is this territory, and continued shutdowns and curtailments among several of the industries make buyers quite indifferent to any talk of high prices. Practically all the large consumers, railroads included, have such large reserves that deliveries even on contract have been reduced. In no direction does there seem promise of better business during the fall.

All-rail receipts from central Pennsylvania continue relatively light, shipments being confined almost entirely to contract requirements. Many operations are idle and spot orders for grades other than specialties are extremely hard to find. There has been a marked let-down in tonnage moved via the New York and Philadelphia piers, and more than a few shippers are being pressed to move accumulations.

At Hampton Roads there is hardly any spot inquiry from New England. While no outright quotation of less than $5 per gross ton f.o.b. vessel has been heard the buyer is made to feel that lower offers would be accepted.

The soft-coal market at New York continues dull. Save for contract coals there is slow movement and the spot market is quiet. Shipments to tidewater, except on consignment, are slow. At Philadelphia no bad effects as the result of the hard-coal settlement were felt and the position of the bituminous market is considered better than fair, with prices indicating a betterment. The industrial situation is considered good and there is a growing tendency on the part of consumers without contracts to seek cover at least for a portion of their tonnage to April 1. There is little change in the Baltimore situation, while quietness has marked the Birmingham market. There is scarcely any demand for bunker coal at the Southern ports.

Shipments of Anthracite Eagerly Awaited

A small tonnage of anthracite domestic coals is being moved as the result of the strike. Producers have no coal to offer and quotations heard for coal on cars or in boats have been nominal. There has been some offering of washery egg, stove and chestnut sizes made at $10@$11 f.o.b. mines but sales have been slow. The steam sizes were plentiful and were quoted at around $3.50 for buckwheat No. 1, $2.50 for rice and $1.50 for barley. Movement, however, has been slow. Dealers are anxiously awaiting the first shipments of domestic coals following the resumption of mining. Hard coal is in good demand in Toronto.

DUE TO THE SUSPENSION OF MINING in hard-coal fields and the practical stoppage of shipments from the mines, quotations are merely nominal, and are not printed. *Coal Age* quotations on anthracite will be resumed when the new prices are available.

Car Loadings, Surplusages and Shortages

	Cars	Loaded
	All Cars	Coal Cars
Week ended Sept. 1, 1923	1,092,567	206,610
Previous week	1,069,932	203,076
Same week in 1922	923,806	149,227

	Surplus Cars		Car Shortage	
	All Cars	Coal Cars		
Sept. 1, 1923	66,559	3,922	9,441	4,891
Same date in 1922	70,455	54,566	.....	.....
Aug. 22, 1923	74,917	5,498	7,690	3,574

Foreign Market And Export News

British Coal Production Increases Slightly; Exports for August Show Gain

Production of coal in Great Britain's mines during the week ended Sept. 1 was 5,280,000 tons, says a cable to *Coal Age*. This is the largest weekly output since July 7 last, when it was 5,360,000 tons. During the week ended Aug. 25 output was 5,163,000 tons.

The South Wales market is quieter with prices slightly lower, due to the improved Italo-Greek controversy and the settling of the anthracite situation in the United States. Demand is insufficient to absorb the output. European buying is slightly heavier.

The wages of Welsh miners have been advanced in September by 3.85 per cent to 41.47 per cent over the standard of 1915. Earnings would have been larger but for June holidays.

The Newcastle market is better and inquiries are more free, the most business being done in the gas and coking sections.

Coal exports for the months of August, 1923 and 1922 as reported by the Board of Trade were as follows, in tons:

	1923	1922
Germany	1,215,000	1,166,000
France	1,561,000	940,000
Italy	513,000	476,000
Other countries	3,291,000	3,564,000
Total	6,580,000	6,146,000

Business Slow at Hampton Roads

The market at Hampton Roads felt the effects of the anthracite settlement in lessened activities, and in slackening inquiries. The dumpings at piers fell off, and little new business is in sight for the immediate future.

Export business showed a tendency downward, and the bunker trade was doing little better than holding its own. Coastwise business was on the upgrade, but did not show a sufficient increase to have any effect on the market.

For the first time in many months low volatile coal was actually offered on the spot for less than $5. The tone of the market was dull, and the outlook not so bright.

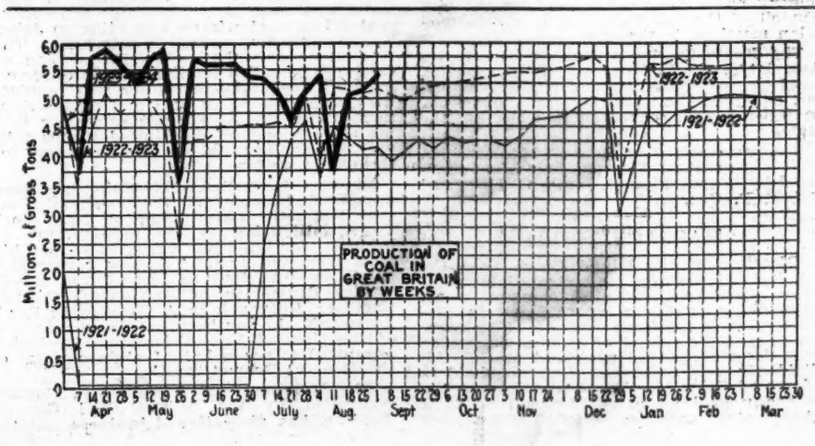
U. S. July Coal and Coke Exports

(In Gross Tons)

	1922	1923
Anthracite	16,698	455,370
Bituminous	366,287	2,278,241
Exported to		
Belgium		9,322
France		101,302
Germany		30,224
Greece		5,529
Italy	7,476	69,723
Latvia		11,838
Netherlands		124,021
Sweden		18,374
England		9,317
Canada, Marit. Prov.	209,008	54,737
Quebec & Ont.		2,054,369
Prairie Pro.		16,889
Brit. Col. & Yuk.		8,821
Guatemala		49
Honduras		165
Nicaragua		85
Salvador		7
Mexico	6,415	11,393
Miquelon, etc., Is.		8,458
Newfdld. & Labrador		233
Bermuda		2,757
Jamaica		7,028
Other Brit. West Indies		49
Cuba	22,500	68,477
Dominican Republic		1,903
Dutch W. Indies		9,170
Haiti		2,600
Virgin Is. of U. S.		3,233
Argentina	7,576	25,802
Brazil	12,544	42,508
Chile		5,459
Colombia		11
Ecuador		49
British Guiana		1,793
Uruguay		11,684
Other Oceania		420
British W. Africa		1,021
Egypt		2,425
Algeria & Tunis		12,379
West Indies	8,079	
Panama	7,025	
Other Countries	4,664	
Coke	27,686	60,462

French Market Firm; Demand Active

The French coal market is firm with demand for all grades, chiefly in house coals, active. Prices show a tendency to advance, Belgian sizes coals increasing 15 fr. and ovoids 10 fr. Imports of British coals are lower in spite of a decrease in prices for secondary industrial grades. From Aug. 21 to 27 the S.C.O.F. received 23,000 tons of coke from the Ruhr, making a total of 101,000 tons received during the first twenty-seven days of that month. During the first twenty days of August France and Luxemburg received 34,500 tons of coal, 67,100 tons of coke and 600 tons of lignite briquets. Announcement has been made that the price of German coke would be advanced 24 fr. to 388 fr.



Export Clearances, Week Ended Sept. 1, 1923

FROM BALTIMORE

	Tons
For France:	
Belg. SS. Nervier	7,823
For Greece:	
Ital. SS. Ignazio Fiorio	8,189
For Costa Rica:	
Br. SS. Putney	2,980
For Italy:	
Br. SS. Dunstaffnage	5,432
COKE	
For Costa Rica:	
Br. SS. Putney	31
For Germany:	
Am. SS. Eastern Star	4,088

FROM PHILADELPHIA

For Cuba:	
Schr. Ludlow, for Port Tarafa	——

FROM HAMPTON ROADS

For Chile:	
Br. SS. Putney, for Valparaiso	848
For West Indies:	
Du. SS. Arundo, for Fort de France	4,977
For Holland:	
Du. SS. Aldebaran, for Rotterdam	11,331
Belg. SS. Caucasier, for Rotterdam	6,325
For Cuba:	
Br. SS. Berwindvale, for Havana	7,388
Amer. SS. Theoline, for Manzanillo	893
For Italy:	
Ital. SS. Zovetto, for Porto Ferrajo	6,887
Br. SS. Lord Ormonde, for Genoa	3,719
For France:	
Bel. SS. Carlier, for Havre	5,417
For Canada:	
Nor. SS. Modiz, for St. John	4,024
For Brazil:	
Br. SS. Picton, for Santos	6,694
For Philippine Islands:	
Amer. SS. The Lambs, for Cavite	8,305

Hampton Roads Pier Situation

N. & W. piers, Lamberts Pt.:	Sept. 7	Sept. 13
Cars on hand	1,403	1,597
Tons on hand	81,979	94,408
Tons dumped for week	108,351	108,420
Tonnage waiting	1,500	600
Virginian Ry. piers, Sewalls Pt.:		
Cars on hand	1,904	1,806
Tons on hand	111,140	108,720
Tons dumped for week	107,952	81,597
Tonnage waiting	7,042	2,228
C. & O. piers, Newport News:		
Cars on hand	2,372	1,843
Tons on hand	120,688	97,300
Tons dumped for week	90,602	102,725
Tonnage waiting	6,005	3,050

Pier and Bunker Prices, Gross Tons

PIERS

	Sept. 8	Sept. 15†
Pool 9, New York	$5.35@$5.75	*$5.25@$5.60*
Pool 10, New York	4.75@ 5.25	4.85@ 5.10
Pool 11, New York	4.50@ 4.75	4.50@ 4.75
Pool 9, Philadelphia	5.25@ 5.70	**5.30@ 5.75**
Pool 10, Philadelphia	4.65@ 5.25	**4.65@ 5.30**
Pool 11, Philadelphia	4.35@ 4.80	4.35@ 4.80
Pool 1, Hamp. Roads	5.25	*5.15@ 5.25*
Pools 5-6-7, Hamp. Rds.	4.35@ 4.50	4.50
Pool 2, Hamp. Roads	5.00	*4.85@ 5.00*

BUNKERS

Pool 9, New York	5.65@ 6.05	*5.55@ 5.90*
Pool 10, New York	5.05@ 5.50	5.15@ 5.40
Pool 11, New York	4.80@ 5.05	4.80@ 5.05
Pool 9, Philadelphia	5.60@ 6.05	**5.65@ 6.10**
Pool 10, Philadelphia	5.00@ 5.50	**5.10@ 5.60**
Pool 11, Philadelphia	4.65@ 5.00	4.70@ 5.00
Pool 1, Hamp. Roads	5.25	*5.15@ 5.25*
Pool 2, Hamp. Roads	5.00	*4.85@ 5.00*

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations, by Cable to *Coal Age*

	Sept. 8	Sept. 15†
Admiralty, large	28s.6d.@30s.	*28s.6d.*
Steam smalls	20s.	20s.
Newcastle:		
Best steams	24s.@24s.6d.	24s.@24s.6d.
Best gas	24s.@24s.6d.	**24s.@25s.**
Best bunkers	22s.6d.@24s.	**23s.@24s.6d**

News Items From Field and Trade

ALABAMA

The DeBardeleben Coal Corporation has resumed operations at the Townley mines, in the Carbon Hill district of Walker County. These mines were taken over from the Corona Coal Co. in the recent merger, but an extensive rehabilitation program had been under way for several months by the former owners. Modern equipment for the mining, handling and preparation of coal has been installed and all machinery is electrically driven. The workings of Nos. 1 and 2 mines have been connected and the coal will be removed from the No. 1 slope. It is expected to increase development work and eventually attain an output to 1,500 or more tons daily.

The Alabama, Tennessee & Northern Ry., now operating between Chattanooga, Tenn., and Gadsden, Ala., **is making preliminary surveys for the extension of the line from the present terminus at Gadsden to Birmingham,** and also will establish physical connections with the Seaboard Air Line and Central of Georgia Railways, so it is reported.

ARKANSAS

Judge Youmans in the U. S. District Court at Fort Smith on Sept. 11 **overruled a motion to dismiss the suit of the Coronado Coal Co.** against the United Mine Workers of America, in which judgment is asked for $2,222,000 as a result of labor riots in the Hartford Valley of Sebastian County, in 1914.

COLORADO

Colorado produced 689,254 tons of coal in July, employing for the purpose 11,472 men. This brings the total output for the year to 5,078,897 tons, 637,761 tons ahead of last year. This was done in an average of 87 days of operation.

ILLINOIS

The Chicago, Burlington & Quincy Ry. is building new double tracks from Woodlawn to Waltonville. The work is said to be a part of the $2,000,000 improvement program and will greatly relieve the congested coal traffic between the southern Illinois fields and the Galesburg coal yards of the railroad. W. O. Frame, coal supervisor for the company at Herrin, is in charge of the construction work now going on at Waltonville.

Francis Lewis, mine manager for Mine No. 7 of the Consolidated Coal Co., Herrin, **has been appointed superintendent of the Illinois Coal & Coke Co.'s** mine at Virden, and will take charge at once.

Bids will be received and opened on Sept. 25 by the commanding officer of the U. S. Quartermaster Department at Chicago for furnishing and delivering 2,000 net tons of run-of-mine bituminous coal to Fort Sheridan; deliveries to be made in carload lots. Alternate bids for furnishing the same quantity of semi-anthracite, lump and run-of-mine also will be accepted and considered. Bids also will be received for furnishing and delivering 1,216 net tons of bituminous run-of-mine coal to the Fairfield Air Intermediate Depot at Osborn, Ohio.

INDIANA

Activities which are expected to result in a **new coal mine for Hymera,** in the northwestern part of Sullivan County, are well under way. The United Fourth Vein Coal Co. has ordered abstracts on the Ed. Vanarsdall farm near Hymera and officials of the company have informed Vanarsdall that they will exercise their option to buy his farm, both coal right and surface land. The Vanarsdall farm lies in the center of a 1,000-acre tract, near Hymera, that has been under option for several years. The coal has been thoroughly tested and is reported to be of fine quality in veins Nos. 5, 3, 2 and 1.

The Southwestern Indiana Coal Corporation, Evansville, has been incorporated with a capital of $200,000 to mine and deal in coal. The directors of the company are William F. Quarrie, Frederick E. Reeve, Tom J. Phillips, Loris G. Julian and L. C. Oliver.

Announcement has been made of the election of **C. C. Huestis as president of the newly reorganized Crawford & McCrimmon Manufacturing Co.,** of Brazil. Mr. Huestis will continue to make his home in Greencastle. The new industry which Mr. Huestis heads is one manufacturing mining machinery and special machines of various kinds and is one of the big concerns of the city of Brazil.

KANSAS

Several weeks of negotiations between the Southwestern Interstate Coal Operators' Association and District 14, United Mine Workers of America, for a machine mining contract for the Pleasanton field, which includes Linn County, Kansas, and Bates County, Missouri, terminated when **the joint committee refused to ratify the report of a sub-committee which had agreed on a scale.** Since then President William Bogartz of the Mine Workers has been publishing in newspapers in the district a warning against union miners going to the Pleasanton field. He asserts the mines are closed pending a contract. Efforts to make a machine scale for the entire district several weeks ago ended in failure.

The City of Burlingame has sold to the Bell Coal Co. the local steam power house. This will furnish power to the Fostoria mine and to the mine of the Miller Coal Co. The old power plant of the Bell Coal Co. has been sold to the Standard Coal Co., of Scranton, Kan. All mines will install electric machines. Operators in Osage County are organized to create and hold markets for their coal and among plans are some for joint retail yards in Topeka and other Kansas towns.

KENTUCKY

The trial of the suit of Thomas C. Fuller, of Lexington, against Stuyvesant Peabody, trustee, involving the 140,000 acres of coal and timber land in Clay, Harlan, Leslie, Letcher, Perry and Bell counties, **purchased by Henry Ford from the F. S. Peabody Syndicate,** is on the equity docket of the September term of the U. S. District Court, Eastern Division, which will convene in Frankfort Sept. 24 with Federal Judge Cochran presiding. Fuller, in his bill of complaint against the syndicate, alleged that the land sold to Ford is worth no less than $15,000,000, and that the syndicate has contracted with the Fordson Company for a sale of the property for $12,500,000 or $2,500,000 less than its real value. He contended that he is the owner of a one-tenth interest in the property and that the syndicate is indebted to him in the sum of $105,000, the amount being money which he put up to finance the project. Fuller seeks a receiver for the F. S. Peabody Syndicate and for a restraining order to prohibit the sale of the land to Ford until his rights and interests are determined by the court.

Lonnie Jackson, Mayor of Central City and president of District 23, United Mine Workers, who recently announced that no members of his organization could join the Ku Klux Klan without being fired from the miners' body, has been upheld by the city council of Central City, which has banned Klan meetings in the city.

The Kentucky Farm Bureau Secretaries Association, in convention in Louisville, **went on record as favoring a coal tonnage tax on production,** arguing for such a tax to be used for educational work in the state.

The Denmark Coal Co., of Madisonville, with a capital of $20,000, has been chartered by Wayne Plymal, James C. Hurt and Robert P. Cox.

MASSACHUSETTS

Directors of the **Island Creek Coal Co.** on Sept. 11 **declared an extra dividend of $2 a share** on the capital common stock, in addition to the regular quarterly disbursement of the same amount. The regular quarterly dividend of $1.50 a share also was declared on the preferred stock. All dividends are payable Oct. 1 to stockholders of record Sept. 21. Three months ago the company paid an extra dividend of $3 a share on the common stock. The company produced 302,000 tons of coal in August. This compares with 277,000 tons in July and is the largest month's output since June, 1922. Output for the present year up to Sept. 1 is now about 1,230,000 tons. The following shows the rising trend of output figures during the past few months (in tons): April, 206,431; May, 224,978; June, 220,898; July, 277,000; August, 302,000.

MARYLAND

H. A. Cochran, recently promoted to the position of coal traffic manager of the Baltimore & Ohio R.R., with offices at Baltimore.

H. A. COCHRAN

has had long experience in railroading and is one of this country's experts on coal traffic. He served in an advisory capacity to Federal Fuel Administrator Garfield during the war.

MINNESOTA

Renewed interest in the possibilities of peat for fuel has been stimulated by the high coal cost. Tests have been made in Minneapolis as to what can be done with peat, but as yet the handicap has been the difficulty of drying and pressing into compact form.

Government figures on foods and fuel indicate that the Twin Cities are under the average large cities on food costs by 71c., but **on hard coal the Twin Cities are $2.40 higher than eight average large cities and on soft coal they are $2.90 higher.**

NEW YORK

Bids will be received and opened on Sept. 21 by the Quartermaster's Department, U. S. Army, First Avenue and 59th Street, Brooklyn, for furnishing and delivering in carload lots to various posts, camps and stations in Maryland and Virginia 13,255 net tons of 2-in. lump bituminous coal, and 1,537 net tons of mine-run bituminous coal to be delivered and trimmed in bunkers of government vessels at Norfolk. The coal is to be delivered during the period Oct. 1, 1923, to June 30, 1924.

The Parliament of Community Councils of New York City in resolutions has **urged action by Governor Smith and special sessions of Congress and Legislature to pass legislation** that will preclude prohibitive coal prices next winter, according to Jabez E. Dunningham, executive secretary. The resolutions ask that a special session of Congress be called for the purpose of enacting such legislation as either will regulate the proper mining of coal and its distribution at fair and reasonable prices, or that the Government of the United States take over such mines and operate the same for the public welfare.

Thomas F. Kelly, of Buffalo, has been appointed manager of the Smelters' General Briquette Corporation of New York City, specializing in the manufacture of briquets for smelting purposes — notably from iron flue dust. The new corporation has been organized to succeed the metallurgical department of the General Briquetting Co. Ellsworth B. A. Zwoyer, of Perth Amboy, N. J., has been appointed manager of the General Fuel Briquette Corporation organized to succeed the fuel department of the General Briquetting Co.

The Montour Coal & Coke Co., Buffalo, controlled by the Milnes Coal Co., of Toronto, **has discontinued business** and the

books and accounts have been shipped to the parent office. John Adema, who was vice-president and manager of the Montour company, has engaged with the Barnett Coal & Coke Corporation as salesman.

The Board of Directors of the **Lehigh Valley Coal Sales Co. have declared a dividend of** $2 per share, payable Oct. 1, 1923, to those stockholders of the company who are holders of full-share certificates of stock, registered on the company's books at the close of business Sept. 13, 1923.

The Maher Collieries Co., an Ohio corporation, with capital of $900,000, has filed its certificate of incorporation in the office of the Secretary of State at Albany and will enter New York State. H. S. Gould, of 37 Wall Street, New York City, is agent for the corporation.

Walter L. Banta has become vice president of the Seiler Coal Co., New York City. Mr. Banta formerly was secretary and treasurer of the Fairbanks Co.

PENNSYLVANIA

The Candlemas Coal Co., which recently took over the abandoned anthracite workings formerly operated by J. S. Wentz & Co., at Silverbrook, has announced that plans are under way for the erection of 20 blocks of houses at that place. The work is to be started soon. Silverbrook has been an abandoned mining village since 1907.

The State Bureau of Securities has issued final **closing orders against the firm of Evans, Sprague & Sturges**, promoters of the Chicago & Western Coal Products Corporation, Pittsburgh, and other **firms in Allentown and Philadelphia, charging that the firm's advertising is misleading.**

John L. Lewis, international president of the United Mine Workers, announced that **a contribution of $3,000 has been made to the Japanese Relief fund** by that organization.

By exploding a charge of dynamite in his mouth, Peter Gallagher, inside electrical hoisting engineer at the Cranberry Creek Coal Co., Hazleton, ended his life on Aug. 29. Worry due to differences between himself and the local union of the United Mine Workers to which he belonged, it is said, was the cause of the suicide. Mr. Gallagher resided at West Hazleton.

A state charter has been issued at Harrisburg to the **Horatio Coal Mining Co.**, Punxsutawney. Its purpose is mining, shipping and preparing coal for the market. The company's capital stock is $25,000 and the incorporators are A. King Yost, Punxsutawney, treasurer; Peter C. Cameron and Glenn M. Cameron, Philadelphia.

The Wilbur Coal Mining Co., the Knickerbocker Smokeless Coal Co. and the Somerset Mining Co. have entered into a merger, the new company being known as the Wilbur Coal Mining Co., according to papers filed at the State Department at Harrisburg. The central office of the company is at Johnstown and the capital stock is $1,171,666.67. F. M. Graff, Blairsville, is the treasurer. The purpose of the company is mining and preparing bituminous coal for the market.

A law to compel operators and distributors marketing substitutes for anthracite entering interstate commerce **to declare on their invoices exactly what these substitutes may be**, so that the public may not be defrauded into paying the price of first class fuel, will be the object of a bill that will be introduced in Congress when it convenes by Congressman J. Banks Kurtz, of Altoona. If Congress favorably considers the proposition the public will be given the same protection when buying coal that is now accorded it when it buys articles of food, declares Congressman Kurtz.

The West Penn Power Co. recently purchased eight Westinghouse new model multiple retort underfeed stokers for its Springdale plant. They will be driven by eight two-speed three-phase motors complete with slide rails and controllers. Sixteen three-phase squirrel cage rotor motors also have been ordered to drive the rolls on the rotary ash discharge devices. These motors are actually capable of developing two maximum and two minimum speeds, giving a four to one speed ratio through two sets of poles, the stoker motors having six and twelve poles respectively and the grinder motors having six and eighteen poles respectively.

Workmen in the act of making excavations for a new building to be erected by Jacob Alinkoff, at Wilkes-Barre, **ran into an outcrop of most valuable coal.** Between 20 and 30 tons have already been mined. According to an old miner on the scene of the find, the coal is an outcrop of the Hillman vein of the Lehigh & Wilkes-Barre Coal Co. The vein is reported to be between 2 and 5 feet in thickness and of the finest grade of anthracite. Who will own the coal is not known at present because it has not been determined whether the Michael Holton estate, from which Mr. Alinkoff bought the property, or the coal company has the mineral rights.

TENNESSEE

C. E. Klinger, of Pottsville, Pa., **has purchased several large coal-lease rights near Chattanooga**, and has announced plans of producing 2,000 tons per day of coal from his properties.

VIRGINIA

The Clinch River Coal Corporation of Virginia recently purchased the properties of the Odle Coal Corporation at Coeburn, on the Pocahontas Division of the Norfolk & Western Ry. The properties consist of 634 acres containing the Widow Kennedy and Banner seams. Production, particularly of domestic sizes, will be considerably increased.

Organized in October, 1921, with a capital stock of $300,000 **the Glen Burke Coal Corporation will soon begin operations** on an extensive scale a few miles northwest of Richlands. Six mines have been opened with a view to mining a very high grade of coal, the coal to be loaded over a tipple equipped with shaker screens and provided with four loading tracks. It is stated that the tipple will have a capacity of 500 tons an hour. In addition to the usual plant buildings twenty-seven mining houses have already been constructed. Officers of the company are Lewis C. McNeer of Dante, president; Thomas T. McNeer, of Dante, vice-president; A. S. McNeer, of Richlands, assistant to the president; J. M. Rasnick, Richlands, secretary-treasurer; Frank R. Clark, Clinchco, general manager.

WEST VIRGINIA

The coal industry of West Virginia will be well represented at the annual meeting of the National Tax Association to be held at White Sulphur Springs, Sept. 24-28, if all the coal men designated by Governor E. F. Morgan of West Virginia as representatives of the state attend. Among those named by the Governor were the following: Joe L. Smith and T. H. Wickham, of the Winding Gulf field; Colonel Z. T. Vinson, of Huntington; W. M. Wiley, of Sharples, general manager of the Boone County Coal Corporation; J. C. Pack, of Bramwell; S. A. Scott, general manager of the New River company; Dr. Gory Hogg, of Harvey; John Laing, of the Wyatt Coal Co., and G. H. Caperton, of the South Side Coal Co., of Charleston; J. J. Lincoln, of Elkhorn; Edward O'Toole, general manager of the United States Coal & Coke Co., of Gary.

An attempt was made early in September to burn down the tipple and conveyor of the Sunbeam Coal Co. at Fort Branch in the Logan County field. The fire was discovered by Thomas T. Perry, mine foreman, who extinguished the blaze without assistance and saved the property from destruction. An examination of the origin of the blaze showed unmistakably that it was the work of firebugs bent on destroying the structure. Within 24 hours another attempt was made to destroy the property, the night watchman seeing a man enter the conveyor system. A search failed to reveal the presence of the intruder and he is believed to have fled before the property could be surrounded.

Albert O'Neal, of Pax, who has been connected with the Packs Branch Coal Co. at Pax, has resigned his position with that company **to become superintendent of the Ingram Branch Coal Co.** at Ingram Branch.

In finally prevailing upon 450 striking coal miners at the Barrackville, W. Va. mine of the Bethlehem Mines Corporation to return to work, officials of the United Mine Workers not only do not condone the strike but have stated semi-officially that **the strike was the result of underhand work on the part of the Howatt-Hamilton element** opposed to John L. Lewis.

R. E. Taggart, who has been in charge of the mines of the Stonega Coal & Coke Co. at Big Stone Gap, Va., as general manager, has been **appointed as general manager of the properties of the New River Collieries Co.** recently taken over by the Wentz interests, of Philadelphia. This company operates mines at Eccles and Sun, and the understanding is that Mr. Taggart will make his headquarters at Eccles.

George Morrow, one of the leading coal operators of the Kanawha field and one of those largely interested in the Hazy Eagle Collieries Co., which he organized, died at his apartments in the Peyton Building, Charleston, on Sept. 8 as the result of self-inflicted bullet wounds. Ill health and business worries are thought to have been responsible for his act, as he had been in a despondent condition for some time. His business troubles, however, friends think, were more fancied than real. George Morrow established his home in Charleston about six years ago, at which time he organized the Hazy Eagle Collieries Co., operating on the Coal River branch of the Chesapeake & Ohio R.R. From that venture he is said to have received large returns. Before organizing the Hazy Eagle company, Mr. Morrow had been a salesman for the Pittsburgh Gage & Supply Co. in the Kanawha and New River fields. Mr. Morrow's former home was at Weirton, in Hancock County, where he has an aunt and other relatives. His body was taken there for burial.

As a result of the special convention of the miners of District 17 held at Charleston early in September following an agitation growing out of the last miners' election, an amendment has been adopted to the constitution of the district providing for the recall of officers under certain conditions. The convention also directed the executive board of the district to hold a new election for vice-president. That was the office to which R. M. Williams, who was the instigator of the movement for a special convention, aspired, but he was ruled off the ballot by the executive board, William Petry being elected vice-president. Under the terms of the new amendment a petition of only 10 per cent of the membership will be required to call for the circulation of a recall election and it will require only 30 per cent of the membership to demand such an election. The district executive board reversed its decision removing the name of Williams from the ballot and was sustained by the convention. It is stated that a new election will be held as soon as possible.

WASHINGTON

Roslyn coal mines were awarded several large contracts when the State Department of Business Control Aug. 30 bought its coal for the various state institutions. The Roslyn Fuel Co. was awarded three contracts, as follows: 5,000 tons at $6.95, to Eastern State Hospital, Medical Lake; 1,500 tons at $5.04, Ellensburg Normal School; 1,500 tons at $6.50, Cheney Normal. The Roslyn Cascade Coal Co. was awarded the following contracts: 3,000 tons at $6.95, Custodial School, Medical Lake; 5,900 tons at $7.40, Washington State College.

WISCONSIN

The Wisconsin department of markets has issued a warning advising all people of the state to be careful in placing coal orders to avoid obtaining low-quality fuel. The action of the department was caused by the activities in the state of so-called "snow birds" who buy up coal at bargain prices, irrespective of grade or quality, and ship it to some unsuspecting agent or representative who has been induced to tie up with the proposition. Milwaukee, Fond du Lac, Madison, Racine, Janesville and many other cities have been flooded with literature of these socilitors.

WASHINGTON, D. C.

The Membership Committee of the National Coal Association for the coming year is as follows: Walter Barnum (Chairman), treasurer, Pacific Coast Co., New York; George S. Brackett, executive vice-president, Northern West Virginia Coal Operators Association, Fairmont, W. Va.; E. R. Clayton, secretary, Harlan County Coal Operators Association, Harlan, Ky.; Ira Clemens, president, Clemens Coal Co., Pittsburg, Kan.; L. C. Crewe, president, LaFollette Coal & Iron Co., LaFollette, Tenn.; George B. Harrington, president, Chicago, Wilmington & Franklin Coal Co., Chicago; W. L. A. Johnson, general commissioner, Southwestern Interstate Coal Operators Association, Kansas City, Mo.; D. C. Kennedy, secretary, Kanawha Coal Operators Association, Charleston, W. Va.; F. S. Love, general manager, Union Collieries, Pittsburgh, Pa.; W. F. Megeath, president, Roundup Coal Mining Co., Omaha, Neb.; C. J. Neekamp, secretary, Northeast Kentucky Coal Association, Ashland, Ky.; R. M. Randall, general manager, Consolidate Coal Co. of Saginaw, Saginaw, Mich.; W. J. Sampson, president, Witch Hazel Coal Co., Youngstown Ohio; H. N. Taylor, president, U. S. Distributing Corporation, New York; Jonas Waffle, secretary, Indiana Coal Traffic Bureau, Terre Haute; D. B. Wentz, president, Stonega Coke & Coal Co., Philadelphia.

CANADA

By an order of Justice D. A. McDonald, in the Supreme Court of British Columbia,

the **Fleming Coal Co. has been declared bankrupt**. The order was not opposed by the defendant's counsel. The company owns a property in the Middlesboro field, near Merritt, and for some time has been developing a 6-ft. seam of coal, which, however, has two persistent rocky partings, making operations difficult and costly. Last year the mine produced a little less than 40,000 tons of coal.

The recent appointment of Thomas Graham to the position of general manager of the Canadian Collieries (D) Ltd., in place of J. M. Savage, deceased, has created a very favorable impression in coal-mining centers on Vancouver Island and among business men throughout the province. The same may be said of the announcement of the elevation of Charles Graham, a brother, to the post of general superintendent, formerly held by Thomas Graham.

After a conference between C. A. Magrath and J. A. Ellis, federal and provincial fuel controllers, and Premier Ferguson and Charles McCrea, Minister of Mines, at Toronto recently, relative to Ontario's fuel supply for the coming winter, Premier Ferguson announced that arrangements are being made to have **municipalities appoint local fuel controllers for the purpose of regulating the distribution of anthracite and fixing the price per ton locally.** This latter action is necessitated, said the Premier, by reason of the difficulty of a central fuel controller fixing prices for outlying places with the transportation conditions and other exigencies of which he may not be familiar. Local municipal fuel controllers will have power to fix prices through having authority delegated to them from the provincial fuel controller.

John L. Lewis, president of the United Mine Workers, has notified the members of local unions and members of the organization in Nova Scotia that they **must recognize the provisional officers** and pay into the treasury their per capita tax. Silby Barrett is the president of the provisional district and Lewis McCormick is secretary-treasurer. Since the old board of executive officers were deposed, it is stated, several of the locals have refused to pay to Mr. McCormick the monthly per capita tax. **The Dominion Coal Co.** is making preparations to **start work on a new colliery at Lingan Bay.** The shaft will be about 1,000 ft. deep and will be equipped with the latest machinery and working appliances. Workmen are already engaged in constructing a branch road from the main railway near by.

Obituary

C. W. Steward, a pioneer retail fuel dealer of Minneapolis, died recently, after a residence of 52 years in the city.

Henry G. Williams, former general manager of the Utah Fuel Co., Salt Lake City, is dead at Los Angeles. Mr. Williams was in his 70th year. He left Salt Lake City two years ago. He served the company in an advisory capacity until last year. He was regarded as one of the leading coal-mining engineers in the West.

Percy L. Dubois, for many years a director in the Consolidated Coal Co. of St. Louis and auditor of that company, died at the Barnes Hospital in St. Louis, Sept. 1, after an illness of several months. Practically all of his life he was connected with the Consolidated Coal Company's interests. He leaves a widow and was a member of many of the country clubs and ranked high in Masonic circles.

James Ewan Robertson, senior partner of James E. Robertson & Co., El Paso, Texas, died suddenly at his home Aug. 5. Mr. Robertson was a son of Major James E. Robertson of Appomattox County, Virginia, who served four years in the 20th Virginia battalion of heavy artillery in the Confederacy. His mother was a descendant of Lord Delaware and Governor Spottiswood, one of the Colonial governors of Virginia. About twenty years ago Mr. Robertson went to El Paso, where he was connected with the El Paso Smelter, later entering business for himself. At the time of his death he was one of the most widely known men interested in mining in Mexico, California and the Southwest. Mr. Robertson is survived by his widow, two sons, James E., Jr., of Los Angeles, Calif., and Dave W., with the New York office of the H. H. Robertson Co., which his father also represented, and one daughter, Mrs. Alice Summerill, of El Paso. The business which Mr. Robertson established will be carried on by his partner, Francis Wagner, of El Paso.

Publications Received

Coal Age is prepared to present to many of its readers a copy of a bound volume of **"Legal Decisions Affecting Coal and Coke,"** prepared and compiled by Arthur L. H. Street, of the Minnesota Bar, and reprinted from *Coal Age*. This is a valuable book of 128 pages and should be on the desk of every coal man. It can be obtained by sending 25c. to cover the cost of mailing.

Traffic News

The Minnesota State Railroad and Warehouse Commission has applied to the I. C. C. to intervene in the hearing on users of anthracite coal from all over the country. The attitude of the Minnesota board is not determined but will be governed by the evidence. The board will seek to prevent any increase of freight rates, and if possible, will seek to secure reductions.

Anderson (Ind.) retail coal dealers have filed a complaint with the Interstate Commerce Commission through the Indiana Coal Merchants' Service Bureau, **asking a reduction in freight rates from the West Virginia and Kentucky coal fields.** It is said that many points in Illinois and Ohio have considerably lower rates on coal from West Virginia and Kentucky than Anderson.

The Norfolk & Western R.R. has made application to the Interstate Commerce Commission for authority to acquire control of the Big Sandy and Cumberland R.R. and other short lines of road in the vicinity of Devon, W. Va. The Norfolk & Western has agreed to pay approximately $600,000 for the new property, which is held by the W. M. Ritter Lumber Co.

Officials of the Louisville & Nashville R.R. have announced that the **State of Georgia has withdrawn objections filed against the road taking over a 999-year lease on the Carolina, Clinchfield & Ohio R.R.**, and the only protests now are those of the Seaboard Airline and one or two small roads, which have filed protest before the Interstate Commerce Commission. The latter protests are merely to protect business in hand, and are not likely to be seriously considered, whereas the proposed connection between the L. & N. and the C. C. & O. will be of vast advantage to the L. & N. and Atlantic Coast Line.

In the matter of **New Mexico Ry. vs. Atchison, Topeka & Santa Fe Ry.**—Docket No. 13755—the Interstate Commerce Commission upheld the report of the examiner and **dismissed the complaint.** The complaint prayed that the defendant be ordered to turn over its company coal to the complainant for transportation from Kennedy to Willard, N. M., at a charge to be prescribed, and that through rates and joint rates and reasonable and equitable divisions of such joint rates be established on commercial coal from points on the defendant's line in the Raton district, N. M., via complainant's line to points on defendant's line in eastern New Mexico and Texas. It was found, however, that the commission is without power to require the transportation of defendant's company coal by complainant and that the existing through route for commercial coal over defendant's line is not unreasonably long as compared with a route via complainant's line.

Approximately sixty companies, including railroad, steel, iron, coke, glass and others, have petitioned the commission for a rehearing of the case, the majority of them declaring they did not have an opportunity to present important evience at hearings held prior to the commission's ruling that the assigned car rule should be abolished. It is understood that one of the principal reasons for the latest further postponement of the effective date of the order is that the commission desires to have its full membership act upon the many petitions for a rehearing of the case, and as a number of the commissioners will not return until after Oct. 1, this would be impossible unless the date was extended.

Civic bodies of St. Paul, Duluth and Minneapolis have filed a protest with the I. C. C. against the proposed 11c. reduction on coal from the docks to the Twin Cities, and suggest a rate of $1.50. The protest states that the carriers had about decided on a voluntary rate of this amount several years ago, when the commission's distance schedule allowed the present rate of $1.82, which was put in. They refer to a rate of $1.70 proposed by the State Railroad and Warehouse Commission on northbound shipments as intended to be a maximum rate to protect isolated communities from excessive rates and was not intended to govern the heavy tonnage moving from the docks to the Twin Cities, which is claimed to be immensely profitable—unreasonably so. There should be a final ruling from the I. C. C. on the complaint of the dock association as to the relative rates on coal from the docks and from the all-rail fields. The hearing was held last May, and the arguments made in June. The examiner's report was made a month or so ago, and the decision should be coming along soon.

Railroads of the United States, according to the Car Service Division of the American Railway Association, **loaded more cars with revenue freight during the week which ended on Sept. 1 than during any week heretofore in history.** The total for the week was 1,092,567 cars, which exceeded by 22,635 cars the previous record, established during the week ended Aug. 25. Despite the fact that the loading of revenue freight for the week of Sept. 1 was the greatest in the history of the nation, the railroads on that date had 66,559 surplus freight cars in good repair and immediately available for service if necessary, while the reported car shortage was only 9,441 cars for the entire country. This is the twelfth week this year the million car loading mark has been exceeded, and in eight of the twelve weeks the total has exceeded the record established during the week of Oct. 14, 1920, when 1,018,539 cars were loaded.

Coal loading during the week of Sept. 1 was 206,610 cars, 3,534 cars above the week before. This also was an increase of 57,383 cars over the corresponding week last year and an increase of 52,024 cars over the corresponding week in 1921. Coke loading totaled 13,970 cars, an increase of 457 over the previous week. This also was an increase of 5,587 cars over the corresponding week in 1922 and an increase of 9,238 cars over the corresponding week in 1921. Loading of revenue freight this year to date totals 33,161,743 cars compared with 27,607,701 in the corresponding period of 1922 and 25,754,571 during a similar period two years ago.

Readjustment of freight rates was discussed by representatives of the agricultural, manufacturing, labor, mercantile, banking and transportation interests constituting the Rates Committee designated by the Chamber of Commerce of the United States, at a meeting Sept. 12 in the board room of the Chamber in Washington. The rate question was approached by the committee as one of readjustment rather than reduction. Whether certain rates, such as those on light and bulky freight made up usually of manufactured products moving in less than carload lots, are not too high in relation to rates on heavy commodities such as wheat and coal, forms the chief topic of the report which will be submitted to Julius H. Barnes, president of the National Chamber. With the reports of the four other committees on Regulation, Consolidation, Waterways and Motor Transport, it will constitute the basis of discussion for the forthcoming general conference on transportation.

Coming Meetings

The American Mining Congress will hold its twenty-sixth annual convention in conjunction with the National Exposition of Mines and Mining Equipment, Sept. 24-29, **at the Milwaukee Auditorium. Milwaukee. Secretary, J. F. Callbreath, Washington.**

National Safety Council will hold its twelfth annual safety convention at the Buffalo Statler Hotel, Buffalo, N. Y., Oct. 1-5. Secretary, W. H. Cameron, 168 No. Michigan Ave., Chicago, Ill.

Fifth annual general Western meeting, Canadian Institute of Mining and Metallurgy, Oct. 3-5, at Estevan, Saskatchewan, Canada. Secretary, G. C. Mackenzie, Drummond Building, Montreal, Que., Canada.

American Gas Association, annual meeting Oct. 15-19, Atlantic City, N. J. Secretary-Manager, Oscar H. Fogg, 342 Madison Ave., New York City.

The West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers will hold its annual meeting Oct. 19-20 at Huntington, W. Va. Secretary-treasurer, Herbert Smith, Robson-Prichard Bldg., Huntington, W. Va.

Coal Mining Institute of America will hold its annual meeting Dec. 19, 20 and 21 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., Chamber of Commerce Building, Pittsburgh, Pa.